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GENERAL DYNAMICS
ASTRONAUTICS

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ENVIRONMENTAL CONTROL STUDY

OF SPACE VEHICLES

(PART II)

Thermal Environment of Space

Supplement B

Tabular Presentation of Planetary Thermal

and Planetary Albedo Radiation Incident

to Space Vehicles

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A

DESCRIPTION & DEFINITIONS

This supplement presents in tabular form the results of
digital computer calculations for the solution of planetary thermal
radiation and planetary albedo incident to space vehicle surfaces.
Although the data was displayed graphically in Supplement A, it was
felt that the tabulation of the data would be beneficial as direct
tabular input for digital computer vehicle heating programs. The
geometries and results are discussed briefly and the terms defined.

I PLANETARY THERMAL RADIATION

The planetary thermal radiation incident to a vehicle surface may
be computed by the general equation

$$q = FAI_t \qquad (1)$$

where q = thermal radiation rate incident to the vehicle surface,
BTU/hr.

A = characteristic area defining the surface, ft^2.

I_t = total energy rate emitted per planet unit area, BTU/hr-ft^2.

F = geometric factor for radiation from the planet to the
vehicle surface, dimensionless

The value of I_t is tabulated for the planets in Table I. The
geometric factors have been computed for standard vehicle surface
geometries with respect to the earth and tabulated as a function of
altitude from the earth. These geometric factors may also be used
for vehicles in the vicinity of other planets or moons if the geometric
factor is used which corresponds to the adjusted equivalent altitude
determined by multiplying the altitude of the vehicle from the planet
by the ratio of the radius of the earth to the radius of the planet.
These radius ratios are tabulated for the planets in Table I.

(1) SPHERE:

Figure 1 describes the configuration for planetary thermal radiation
to a sphere. The geometric factor is defined on the basis of the
characteristic area A = πr^2,

where r is the radius of the sphere. Then

$$F = q \Big/ \pi r^2 I t \tag{2}$$

The geometric factor for a sphere with respect to the earth is tabulated in Table 2 as a function of altitude.

(2) CYLINDER

Figure 2 describes the configuration for planetary thermal radiation to the convex surface of a cylinder. Because of lack of three dimensional symmetry an attitude parameter, γ , is required and is the angle between the cylinder axis and the vertical to the vehicle. The geometric factor is defined on the basis of the characteristic area, $A = DL$, where D and L are the diameter and length, respectively, in feet for the cylinder. Then

$$F = q \Big/ DLI_t \tag{3}$$

The geometric factor for a cylinder with respect to the earth is tabulated in table 3 as a function of altitude with the attitude angle, γ , as the parameter.

(3) HEMISPHERE

Figure 3 describes the configuration for planetary thermal radiation to the convex surface of a hemisphere. The geometric factor is defined on the basis of the characteristic area, $A = \pi r^2$, where r is the radius of the hemisphere. Then

$$F = q \Big/ \pi r^2 I_t \tag{4}$$

The geometric factor for a hemisphere with respect to the earth is tabulated in Table 4 as a function of altitude with the attitude angle, γ , as parameter.

(4) FLAT PLATE

Figure 4 describes the configuration for planetary thermal radiation to one side of a flat plate. The angle, γ, between the normal to the plate and the vertical to the vehicle defines the attitude of the plate with respect to the planet. The geometric factor is defined on the basis of the characteristic area, $A = P$, the area of one side of the plate. Then

$$P = q \Big/ PI_t \tag{5}$$

The geometric factor for a flat plate with respect to the earth is tabulated in Table 5 as a function of altitude with the attitude angle, γ, as parameter.

It should be noted that the flat plate thermal radiation solution may be used to approximate the thermal radiation incident to any generally convex vehicle surface by dividing the surface into a series of flat plate elements and summing the thermal radiation incident to each of these flat plates.

II PLANETARY ALBEDO

The planetary albedo incident to a vehicle surface may be computed from the general equation:

$$q = FASa \tag{6}$$

where q = albedo heat flux rate incident to the vehicle surface, BTU/hr.

A = characteristic area defining the surface, ft^2

S = solar heat flux or "constant", BTU/hr.-ft^2

a = average reflectivity of the planet's surface, dimensionless

F = geometric factor which accounts for reflected energy distribution on the planetary surface and the geometry, dimensionless

The geometric factor for a sphere is independent of attitude due to

three dimensional symmetry. In the case of all surfaces the location of the vehicle with respect to the sun is defined by the zenith distance between the surface and sun, θ_s. The zenith distance is the angle between the earth-vehicle vector and the earth-sun vector. In the case of surfaces lacking spherical symmetry, the attitude of the surface is defined by two angles. One is the angle, δ , between the axis of the cylinder or hemisphere or normal to the flat plate and the vertical to the vehicle. The other is the angle, ϕ_c , of rotation of the axis or normal about the vertical to the vehicle from the planet. The datum ϕ_c = 0 occurs when the axis or normal lies in the plane defined by the earth-vehicle vector and the earth-sun vector.

The value of S and a are tabulated for the planets in Table I. The geometric factors for albedo have been computed for standard vehicle surface geometries with respect to the earth and tabulated as a function of altitude from the earth. Again, as described for thermal radiation, these geometric factors may be applied to other planets by using the ratio of the radius of the earth to the radius of the planet tabulated in Table I.

(1) SPHERE

Figure 5 shows the configuration for albedo incident to a sphere. The geometric factor is defined on the basis of the characteristic area, $A = \pi r^2$, where r is the radius of the sphere, then

$$F = q \Big/ \pi r^2 S a \tag{7}$$

The geometric factor for albedo incident to a sphere from the earth is shown in Table 6 as a function of altitude in nautical miles with zenith distance, θ_s, as parameter.

(2) CYLINDER

Figure 6 shows the configuration for albedo to the convex surface of a cylinder. For a cylinder the geometric factor is defined on the basis

of the characteristic area, A = DL. Then

$$F = q \diagup DLSa \qquad (8)$$

where D = diameter of cylinder, ft.

L = length of cylinder, ft.

The geometric factor for albedo incident to a cylinder from the earth is tabulated in Tables 7 through 28 as a function of altitude in nautical miles with θ_s, γ, and ϕ_c as parameters. Each table is for a constant γ and $-\phi_c$, i.e. particular attitude with respect to the earth.

(3) HEMISPHERE

Figure 7 shows the configuration for albedo to the convex surface of a hemisphere. For a hemisphere the geometric factor is computed on the basis of the characteristic area, $A = \pi r^2$. Then

$$F = q \diagup \pi r^2 Sa \qquad (9)$$

where r = radius of hemisphere, ft.

The geometric factor for albedo incident to a hemisphere from the earth is tabulated in Tables 29 through 65, as a function of altitude in nautical miles with θ_s, γ, and ϕ_c as parameters. Each table is for a constant γ and ϕ_c, i.e., particular attitude.

(4) FLAT PLATE

Figure 8 shows the geometry for albedo to one side of a flat plate. For a flat plate the geometric factor is computed on the basis of the characteristic area, A = P. Then

$$F = q \diagup PSa \qquad (10)$$

where P = area of one side of the flat plate, ft.^{2}

The geometric factor for albedo incident to one side of a flat plate from the earth is tabulated in Tables 66 through 101 as a function of altitude in nautical miles with θ_S, γ, and ϕ_c as parameters. Each table is for a constant γ and ϕ_c, i.e., particular attitude.

The flat plate albedo solution may also be used to approximate albedo heating of any generally convex satellite or satellite surface by dividing this surface into a series of flat plates and summing the albedo heating for each of these flat plates.

INDEX

INDEX (CONT.)

INDEX (CONT.)

INDEX (CONT.)

INDEX (CONT.)

TABLE I   PLANETARY DATA

Planet	Distance To the Sun (Astronomical Units)	Mean Radius (Nautical Miles) (R)	Solar Heat Flux (Btu/hr ft2) (S)	Albedo (a)	Planetary Thermal Radiation (Btu/hr ft2) (I_t)	Altitude Correction Factor *	Umbra Cone Apex Altitude (N.Miles)	Umbra Cone Angle (Degrees)
Mercury	0.387	1,308	2953.9	0.07	686.79	2.639	109,200	1.37
Venus	0.723	3,307	846.3	0.76	50.78	1.043	518,700	0.73
Earth	1.000	3,441	442.4	0.40	66.36	1.000	746,800	0.53
Mars	1.524	1,799	190.5	0.15	40.48	1.916	592,400	0.35
Jupiter	5.203	37,758	16.4	0.51	1.98	.091	46,974,000	0.09
Saturn	9.539	31,067	4.9	0.50	0.61	.111	69,477,000	0.05
Uranus	19.18	18,818	1.2	0.66	0.10	.269	54,739,000	0.03
Neptune	30.06	11,645	0.5	0.82	0.05	.296	77,686,000	0.02
Pluto	39.52	1,564	0.3	0.16	0.06	2.203	13,347,000	0.01
Moon	1.000	938	442.4	0.07	102.86	3.676	202,200	0.53

* To use the albedo and thermal radiation curves and tabular data for a planet other than the earth, an equivalent earth altitude for the planet must be found. This may be done by multiplying the planetary altitude under consideration by the altitude correction factor given in the above table. The abscissa of the curves should then be entered with this corrected altitude.

Example: Thermal radiation to a sphere 200n.mi. above the surface of Mars.

$$200 \times 1.916 = 383.2 \text{ n.mi.}$$

from Fig. 3, $q / \pi r^2 I_t = 1.12$

Using I_t for Mars gives $q / \pi r^2 = 45.3 \text{ Btu/hr-ft}^2$

Figure 1.   Geometry for Planetary Thermal Radiation to a Sphere

Geometric Factor, $F = \dfrac{q}{\pi r^2 I_t}$
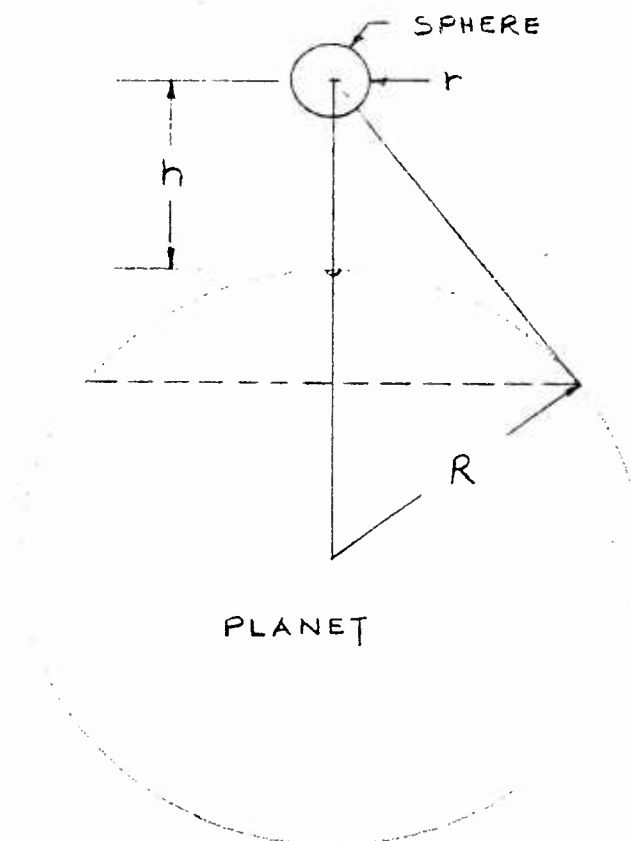
TABLE 2

Geometric Factor for Earth Thermal Radiation To a Sphere

Altitude n.m.	$F = (q/\pi r^2 I_t)$
10	1.8482
50	1.6626
100	1.5278
200	1.3464
400	1.1112
600	0.9512
800	0.8310
1,000	0.7358
2,000	0.4506
4,000	0.2266
6,000	0.1374
8,000	0.0926
10,000	0.0666
15,000	0.0352
20,000	0.0216

Figure 2. Geometry for Planetary Thermal Radiation to a Cylinder

Geometric Factor, $F = \dfrac{q}{DL\,I_t}$
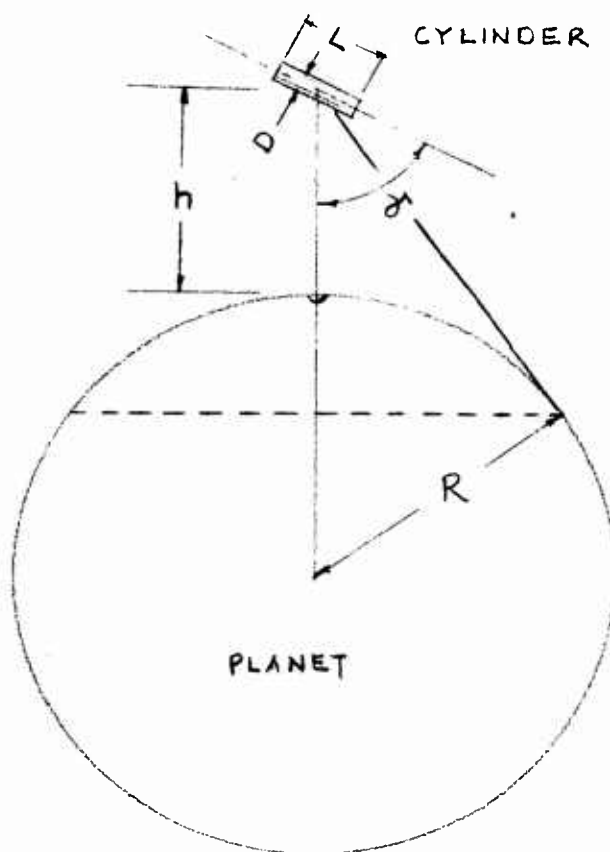
TABLE 3

Geometric Factor for Thermal Radiation to a Cylinder

Altitude (n.m.)	Altitude Angle (γ) (degrees)	Geometric Factor	Altitude (n.m.)	Altitude Angle (γ) (degrees)	Geometric Factor
10	0	1.4171	600	0	0.5722
10	20	1.3957	600	20	0.5858
10	40	1.3982	800	40	0.6512
10	60	1.4194	600	60	0.7499
10	90	1.4533	600	90	0.8393
50	0	1.2350	800	0	0.4720
50	20	1.2278	800	20	0.4887
50	40	1.2448	800	40	0.5595
50	60	1.2833	800	60	0.6611
50	90	1.3495	800	90	0.7450
100	0	1.1032	1000	0	0.3964
100	20	1.1009	1000	20	0.4152
100	40	1.1289	1000	30	0.4491
100	60	1.1824	1000	40	0.5091
100	90	1.2610	1000	60	0.5899
200	0	0.9287	1000	90	0.6679
200	20	0.9281	2000	0	0.1947
200	40	0.9658	2000	20	0.2171
200	60	1.0348	2000	30	0.2491
200	90	1.1229	2000	40	0.2908
400	0	0.7121	2000	50	0.3337
400	20	0.7206	2000	60	0.3707
400	40	0.7768	2000	90	0.4248
400	60	0.8661			
400	90	0.9593			

TABLE 3 Continued

Geometric Factor for Thermal Radiation to a Cylinder (Cont'd)

Altitude (n. m.)	Altitude Angle (γ) (degrees)	Geometric Factor	Altitude (n. m.)	Altitude Angle (γ) (degrees)	Geometric Factor
4,000	0	.0707	20,000	0	.0021
4,000	10	.0750	20,000	10	.0040
4,000	20	.0914	20,000	20	.0074
4,000	30	.1170	20,000	30	.0108
4,000	40	.1447	20,000	40	.0138
4,000	50	.1697	20,000	50	.0165
4,000	60	.1905	20,000	60	.0186
4,000	90	.2199	20,000	90	.0216
6,000	0	.0336			
6,000	10	.0376			
6,000	20	.0512			
6,000	30	.0697			
6,000	40	.0877			
6,000	50	.1036			
6,000	60	.1167			
6,000	90	.1349			
8,000	0	.0186			
8,000	10	.02222			
8,000	20	.0333			
8,000	40	.0590			
8,000	60	.0790			
8,000	90	.0913			
10,000	0	.0114			
10,000	10	.0146			
10,000	20	.0235			
10,000	30	.0333			
10,000	40	.0425			
10,000	50	.0505			
10,000	60	.0570			
10,000	90	.0860			

Figure 5. Geometry for Planetary Thermal Radiation to a Hemisphere

Geometric Factor, $F = \dfrac{q}{\pi r^2 I_t}$

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TABLE 4

Geometric Factor for Thermal Radiation to a Hemisphere

Altitude (n. m.)	Attitude Angle (δ) (degrees)	Geometric Factor	Altitude (n.m.)	Attitude Angle (δ) (degrees)	Geometric Factor
10	0	1.4103	100	120	0.5591
10	20	1.3931	100	140	0.4512
10	40	1.3193	100	160	0.3435
10	60	1.1978	100	180	0.3065
10	80	1.0432			
10	100	0.8743	200	0	1.1127
10	120	0.7114	200	20	1.0941
10	140	0.5741	200	40	1.0248
10	160	0.4790	200	60	0.9130
10	180	0.4376	200	80	0.7723
			200	100	0.6197
50	0	1.3153	200	120	0.4734
50	20	1.2967	200	140	0.3513
50	40	1.2219	200	160	0.2680
50	60	1.1001	200	180	0.2335
50	80	0.9458			
50	100	0.7777	400	0	0.9536
50	120	0.6161	400	20	0.9557
50	140	0.4805	400	40	0.8720
50	160	0.3872	400	60	0.7701
50	180	0.3474	400	80	0.6423
			400	100	0.5041
100	0	1.2216	400	120	0.3721
100	20	1.2034	400	140	0.2623
100	40	1.1323	400	160	0.1878
100	60	1.0167	400	180	0.1577
100	80	0.8706			
100	100	0.7117			

CONVAIR ASTRONAUTICS

TABLE 4 (Continued)

Geometric Factor for Thermal Radiation to a Hemisphere

Altitude (n. m.)	Attitude Angle (γ) (degrees)	Geometric Factor	Altitude (n. m.)	Attitude Angle (γ) (degrees)	Geometric Factor
600	0	0.8361	1000	100	0.3257
600	20	0.8192	1000	120	0.2269
600	40	0.7610	1000	140	0.1452
600	60	0.6683	1000	160	0.0903
600	80	0.5524	1000	180	0.0689
600	100	0.4272	2000	0	0.4248
600	120	0.3079	2000	20	0.4144
600	140	0.2088	2000	40	0.3813
600	160	0.1419	2000	60	0.3295
600	180	0.1153	2000	80	0.2048
800	0	0.7431	2000	100	0.1955
800	20	0.7273	2000	120	0.1299
800	40	0.6740	2000	140	0.0757
800	60	0.5895	2000	160	0.0396
800	80	0.4840	2000	180	0.0259
800	100	0.3702	4000	0	0.2200
800	120	0.2619	4000	20	0.2142
800	140	0.1721	4000	40	0.1962
800	160	0.1117	4000	60	0.1682
800	180	0.0879	4000	80	0.1336
1000	0	0.6668	4000	100	0.0966
1000	20	0.6521	4000	120	0.0615
1000	40	0.6032	4000	140	0.0328
1000	60	0.5259	4000	160	0.0137
1000	80	0.4296	4000	180	0.0067

TABLE 4 (Continued)

Geometric Factor for Thermal Radiation to a Hemisphere

Altitude (n. m.)	Attitude Angle (γ) (degrees)	Geometric Factor	Altitude (n. m.)	Attitude Angle (γ) (degrees)	Geometric Factor
6000	0	0.1351	15,000	100	0.0146
6000	20	0.1314	15,000	120	0.0090
6000	40	0.1201	15,000	140	0.0043
6000	60	0.1027	15,000	160	0.0013
6000	80	0.0811	15,000	180	0.0002
6000	100	0.0581	20,000	0	0.0216
6000	120	0.0364	20,000	20	0.0210
6000	140	0.0186	20,000	40	0.0191
6000	160	0.0068	20,000	60	0.0162
6000	180	0.0025	20,000	80	0.0128
8000	0	0.0914	20,000	100	0.0090
8000	20	0.0889	20,000	120	0.0055
8000	40	0.0812	20,000	140	0.0026
8000	60	0.0693	20,000	160	0.0007
8000	80	0.0540	20,000	180	0.0001
8000	100	0.0389			
8000	120	0.0241			
8000	140	0.0120			
8000	160	0.0040			
8000	180	0.0012			
15,000	0	0.0349			
15,000	20	0.0339			
15,000	40	0.0309			
15,000	60	0.0253			
15,000	80	0.0207			

Figure 4. Geometry for Planetary Thermal Radiation to a Flat Plate

Geometric Factor, $F = \dfrac{q}{PI_t}$
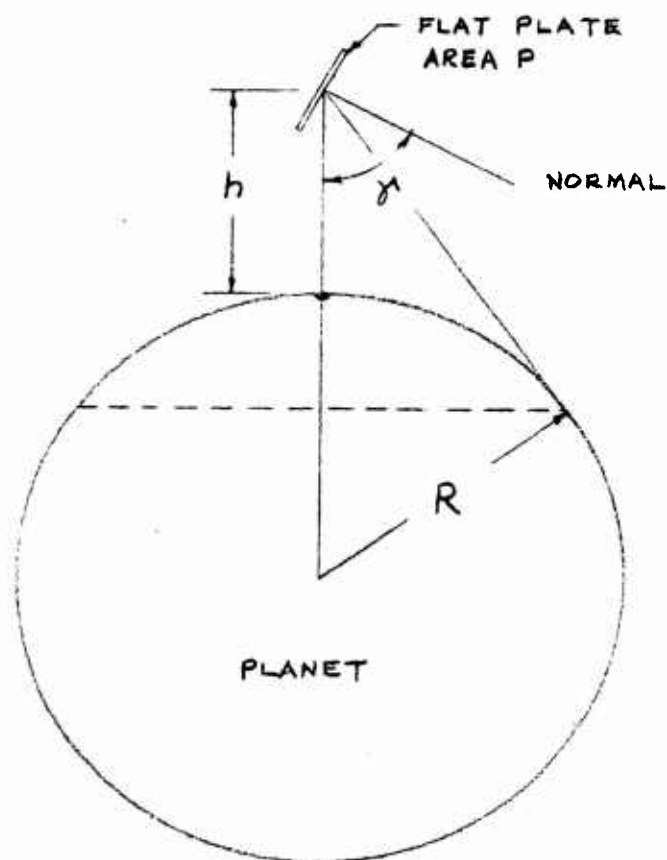
Table 5

Geometric Factor for Thermal Radiation to a Flat Plate

Altitude (n. m.)	Attitude Angle (δ) (degrees)	Geometric Factor		Altitude (n. m.)	Attitude Angle (δ) (degrees)	Geometric Factor
10	0	.9940		50	110	.2334
10	10	.9808		50	120	.1644
10	20	.9504		50	130	.1056
10	30	.9062		50	140	.0587
10	40	.8496		50	150	.0251
10	50	.7824		50	160	.0056
10	60	.7066		50	170	.0000
10	70	.6245				
10	80	.5386		100	0	.9440
10	90	.4516		100	10	.9300
10	100	.3660		100	20	.8890
10	110	.2845		100	30	.8323
10	120	.2095		100	40	.7647
10	130	.1433		100	50	.6887
10	140	.0880		100	60	.6068
10	150	.0452		100	70	.5215
10	160	.0162		100	80	.4353
10	170	.0017		100	90	.3512
				100	100	.2714
50	0	.9710		100	110	.1985
50	10	.9568		100	120	.1346
50	20	.9185		100	130	.0817
50	30	.8664		100	140	.0413
50	40	.8029		100	150	.0145
50	50	.7301		100	160	.0017
50	60	.6502				
50	70	.5657				
50	80	.4791				
50	90	.3932				
50	100	.3104				

Table 5 (Continued)

Geometric Factor for Thermal Radiation to a Flat Plate

Altitude (n. m.)	Attitude Angle (γ) (degrees)	Geometric Factor	Altitude (n. m.)	Attitude Angle (γ) (degrees)	Geometric Factor
200	0	.8930	400	100	.1609
200	10	.8800	400	110	.1047
200	20	.8593	400	120	.0598
200	30	.7787	400	130	.0273
200	40	.7072	400	140	.0077
200	50	.6285	400	150	.0003
200	60	.5452			
200	70	.4603	600	0	.7290
200	80	.3762	600	10	.7170
200	90	.2957	600	20	.6850
200	100	.2211	600	30	.6310
200	110	.1548	600	40	.5577
200	120	.0987	600	50	.4804
200	130	.0543	600	60	.4012
200	140	.0230	600	70	.3233
200	150	.0052	600	80	.2495
200	160	.0000	600	90	.1822
			600	100	.1236
400	0	.8020	600	110	.0753
400	10	.7890	600	120	.0386
400	20	.7530	600	130	.0143
400	30	.6954	600	140	.0022
400	40	.6225			
400	50	.5432			
400	60	.4611			
400	70	.3792			
400	80	.3003			
400	90	.2267			

CONVAIR ASTRONAUTICS

Table 5 (Continued)

Geometric Factor for Thermal Radiation to a Flat Plate

Altitude (n. m.)	Attitude Angle (γ) (degrees)	Geometric Factor	Altitude (n. m.)	Attitude Angle (γ) (degrees)	Geometric Factor
800	0	.6610	2,000	0	.4010
800	10	.6510	2,000	10	.3942
800	20	.6210	2,000	20	.3760
800	30	.5720	2,000	30	.3470
800	40	.5047	2,000	40	.3065
800	50	.4306	2,000	50	.2575
800	60	.3548	2,000	60	.2021
800	70	.2810	2,000	70	.1489
800	80	.2120	2,000	80	.1014
800	90	.1503	2,000	90	.0620
800	100	.0977	2,000	100	.0320
800	110	.0558	2,000	110	.0121
800	120	.0256	2,000	120	.0021
800	130	.0074			
800	140	.0004			
1,000	0	.6000	4,000	0	.2140
1,000	10	.5910	4,000	10	.2110
1,000	20	.5645	4,000	20	.2010
1,000	30	.5200	4,000	30	.1855
1,000	40	.4509	4,000	40	.1640
1,000	50	.3896	4,000	50	.1376
1,000	60	.3174	4,000	60	.1070
1,000	70	.2476	4,000	70	.0742
1,000	80	.1831	4,000	80	.0450
1,000	90	.1262	4,000	90	.0225
1,000	100	.0789	4,000	100	.0079
1,000	110	.0423	4,000	110	.0010
1,000	120	.0172			
1,000	130	.0037			
1,000	140	.0000			

Table 5 (Continued)

Geometric Factor for Thermal Radiation to a Flat Plate

Altitude (n. m.)	Attitude Angle (δ) (degrees)	Geometric Factor
6,000	0	.1332
6,000	10	.1311
6,000	20	.1250
6,000	30	.1153
6,000	40	.1020
6,000	50	.0855
6,000	60	.0665
6,000	70	.0454
6,000	80	.0255
6,000	90	.0107
6,000	100	.0024
6,000	110	.0000
8,000	0	.0905
8,000	10	.0892
8,000	20	.0851
8,000	30	.0785
8,000	40	.0694
8,000	50	.0582
8,000	60	.0455
8,000	70	.0310
8,000	80	.0165
8,000	90	.0059
8,000	100	.0008

Altitude (n. m.)	Attitude Angle (δ) (degrees)	Geometric Factor
10,000	0	.0656
10,000	10	.0645
10,000	20	.0616
10,000	30	.0568
10,000	40	.0503
10,000	50	.0421
10,000	60	.0328
10,000	70	.0224
10,000	80	.0116
10,000	90	.0036
10,000	100	.0002
20,000	0	.0215
20,000	10	.0212
20,000	20	.0203
20,000	30	.0187
20,000	40	.0165
20,000	50	.0139
20,000	60	.0108
20,000	70	.0074
20,000	80	.0038
20,000	90	.0007

CONVAIR ASTRONAUTICS

Figure 5. Geometry for Planetary Albedo to a Sphere

Geometric Factor, $F = \dfrac{q}{\pi r^2 \, S_a}$
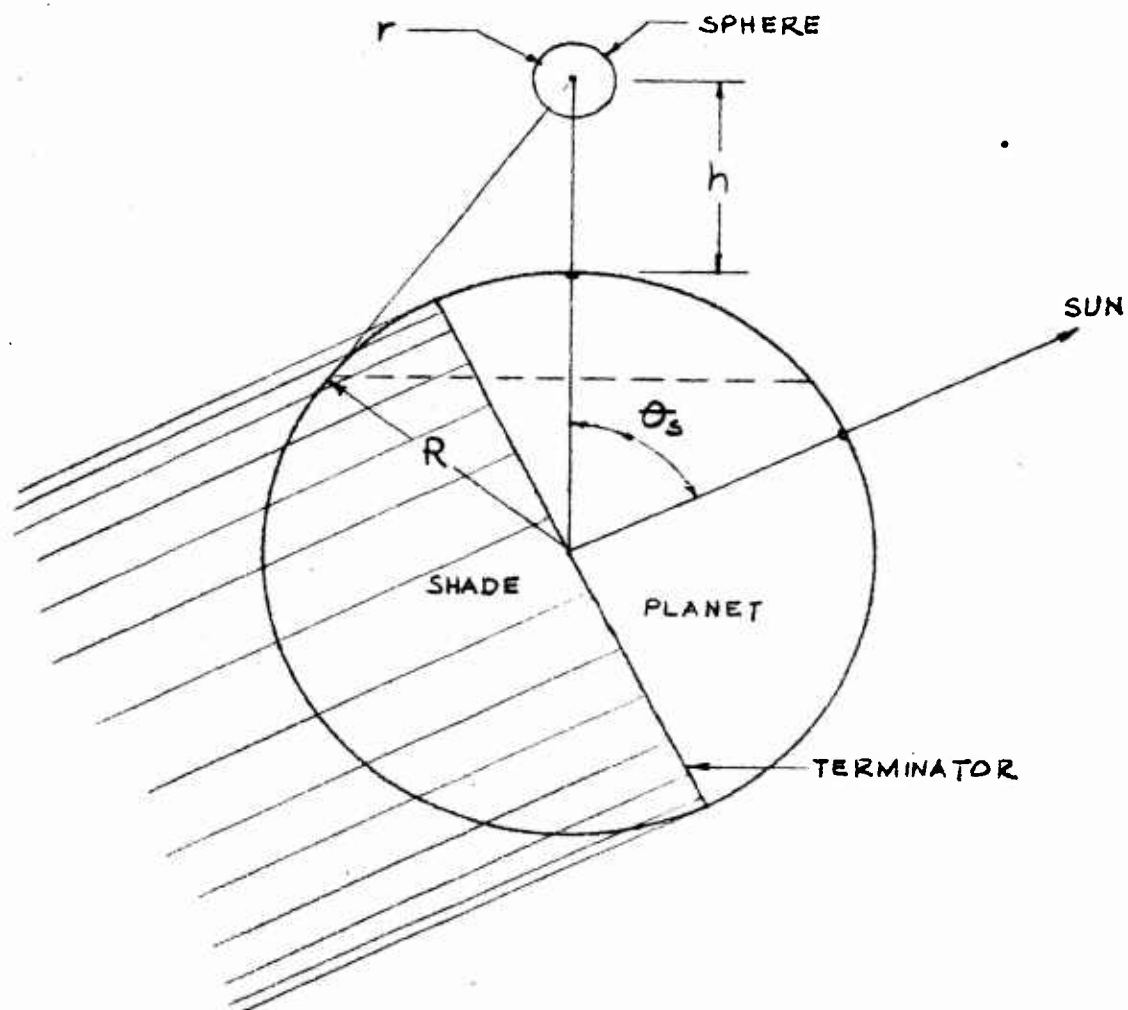
TABLE 6 GEOMETRIC FACTOR FOR ALBEDO TO A SPHERE

Altitude n. m.	Θ_s degrees	F	Altitude n. m.	Θ_s degrees	F
50	0	1.6661	200	0	1.3393
50	10	1.6408	200	10	1.3190
50	20	1.5656	200	20	1.2585
50	30	1.4429	200	30	1.1599
50	40	1.2763	200	40	1.0260
50	50	1.0710	200	50	0.8609
50	60	0.8331	200	60	0.6697
50	70	0.5698	200	70	0.4580
50	80	0.2893	200	80	0.2334
50	85	0.1454	200	85	0.1231
50	88	0.0609	200	88	0.0649
50	90	0.0152	200	90	0.0358
			200	100	0.0017
80	0	1.5757			
80	10	1.5518	500	0	1.0070
80	20	1.4807	500	10	0.9917
80	30	1.3646	500	20	0.9463
80	40	1.2071	500	30	0.8721
80	50	1.0129	500	40	0.7714
80	60	0.7879	500	50	0.6473
80	70	0.5389	500	60	0.5035
80	80	0.2736	500	70	0.3448
80	85	0.1383	500	80	0.1818
80	88	0.0609	500	85	0.1080
80	90	0.0209	500	88	0.0723
80	100	0.0003	500	90	0.0516
			500	100	0.0070
100	0	1.5259			
100	10	1.5027	800	0	0.8053
100	20	1.4339	800	10	0.7931
100	30	1.3215	800	20	0.7568
100	40	1.1689	800	30	0.6974
100	50	0.9808	800	40	0.6169
100	60	0.7650	800	50	0.5177
100	70	0.5219	800	60	0.4027
100	80	0.2650	800	70	0.2772
100	85	0.1346	800	80	0.1527
100	88	0.0613	800	85	0.0985
100	90	0.0241	800	88	0.0714
100	100	0.0005	800	90	0.0561
			800	100	0.0129

TABLE 6   GEOMETRIC FACTOR FOR ALBEDO TO A SPHERE

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
1000	0	0.7066	4000	0	0.1960
1000	10	0.6958	4000	10	0.1930
1000	20	0.6639	4000	20	0.1842
1000	30	0.6119	4000	30	0.1697
1000	40	0.5413	4000	40	0.1503
1000	50	0.4542	4000	50	0.1269
1000	60	0.3535	4000	60	0.1013
1000	70	0.2445	4000	70	0.0756
1000	80	0.1385	4000	80	0.0519
1000	85	0.0929	4000	85	0.0415
1000	88	0.0698	4000	88	0.0358
1000	90	0.0566	4000	90	0.0323
1000	100	0.0158	4000	100	0.0172
2000	0	0.4151	5000	0	0.1467
2000	10	0.4088	5000	10	0.1445
2000	20	0.3901	5000	20	0.1378
2000	30	0.3595	5000	30	0.1271
2000	40	0.3180	5000	40	0.1126
2000	50	0.2670	5000	50	0.0954
2000	60	0.2092	5000	60	0.0767
2000	70	0.1491	5000	70	0.0581
2000	80	0.0934	5000	80	0.0409
2000	85	0.0695	5000	85	0.0332
2000	88	0.0569	5000	88	0.0290
2000	100	0.0220	5000	90	0.0264
			5000	100	0.0145
3000	0	0.2752			
3000	10	0.2710	6000	0	0.1139
3000	20	0.2586	6000	10	0.1122
3000	30	0.2383	6000	20	0.1070
3000	40	0.2108	6000	30	0.0987
3000	50	0.1774	6000	40	0.0875
3000	60	0.1403	6000	50	0.0744
3000	70	0.1027	6000	60	0.0602
3000	80	0.0680	6000	70	0.0461
3000	85	0.0530	6000	80	0.0330
3000	88	0.0449	6000	85	0.0272
3000	90	0.0399	6000	88	0.0239
3000	100	0.0208	6000	90	0.0219
			6000	100	0.0123

CONVAIR ASTRONAUTICS

TABLE 6   GEOMETRIC FACTOR FOR ALBEDO TO A SPHERE

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
7000	0	0.0910	10000	0	0.0523
7000	10	0.0896	10000	10	0.0515
7000	20	0.0855	10000	20	0.0491
7000	30	0.0788	10000	30	0.0453
7000	40	0.0700	10000	40	0.0404
7000	50	0.0597	10000	50	0.0347
7000	60	0.0486	10000	60	0.0286
7000	70	0.0375	10000	70	0.0225
7000	80	0.0273	10000	80	0.0168
7000	85	0.0226	10000	85	0.0142
7000	88	0.0201	10000	88	0.0127
7000	90	0.0184	10000	90	0.0118
7000	100	0.0119	10000	100	0.0078
8000	0	0.0743	12000	0	0.0387
8000	10	0.0732	12000	10	0.0381
8000	20	0.0698	12000	20	0.0364
8000	30	0.0644	12000	30	0.0336
8000	40	0.0573	12000	40	0.0300
8000	50	0.0489	12000	50	0.0258
8000	60	0.0400	12000	60	0.0214
8000	70	0.0311	12000	70	0.0169
8000	80	0.0228	12000	80	0.0128
8000	85	0.0191	12000	85	0.0109
8000	88	0.0170	12000	88	0.0098
8000	90	0.0157	12000	90	0.0091
8000	100	0.0102	12000	100	0.0061
9000	0	0.0618	15000	0	0.0264
9000	10	0.0609	15000	10	0.0260
9000	20	0.0581	15000	20	0.0249
9000	30	0.0536	15000	30	0.0230
9000	40	0.0477	15000	40	0.0206
9000	50	0.0409	15000	50	0.0178
9000	60	0.0336	15000	60	0.0148
9000	70	0.0263	15000	70	0.0118
9000	80	0.0195	15000	80	0.0090
9000	85	0.0164	15000	85	0.0078
9000	88	0.0146	15000	88	0.0070
9000	90	0.0135	15000	90	0.0065
9000	100	0.0089	15000	100	0.0045

TABLE 6   GEOMETRIC FACTOR FOR ALBEDO TO A SPHERE

Altitude n. m.	θ_s degree	F
18000	0	0.0192
18000	10	0.0189
18000	20	0.0181
18000	30	0.0167
18000	40	0.0150
18000	50	0.0130
18000	60	0.0109
18000	70	0.0088
18000	80	0.0068
18000	85	0.0058
18000	88	0.0053
18000	90	0.0049
18000	100	0.0034

Figure 6   Geometry For Planetary Albedo to a Cylinder

Geometric Factor, $F = \dfrac{q}{DL\ Sa}$
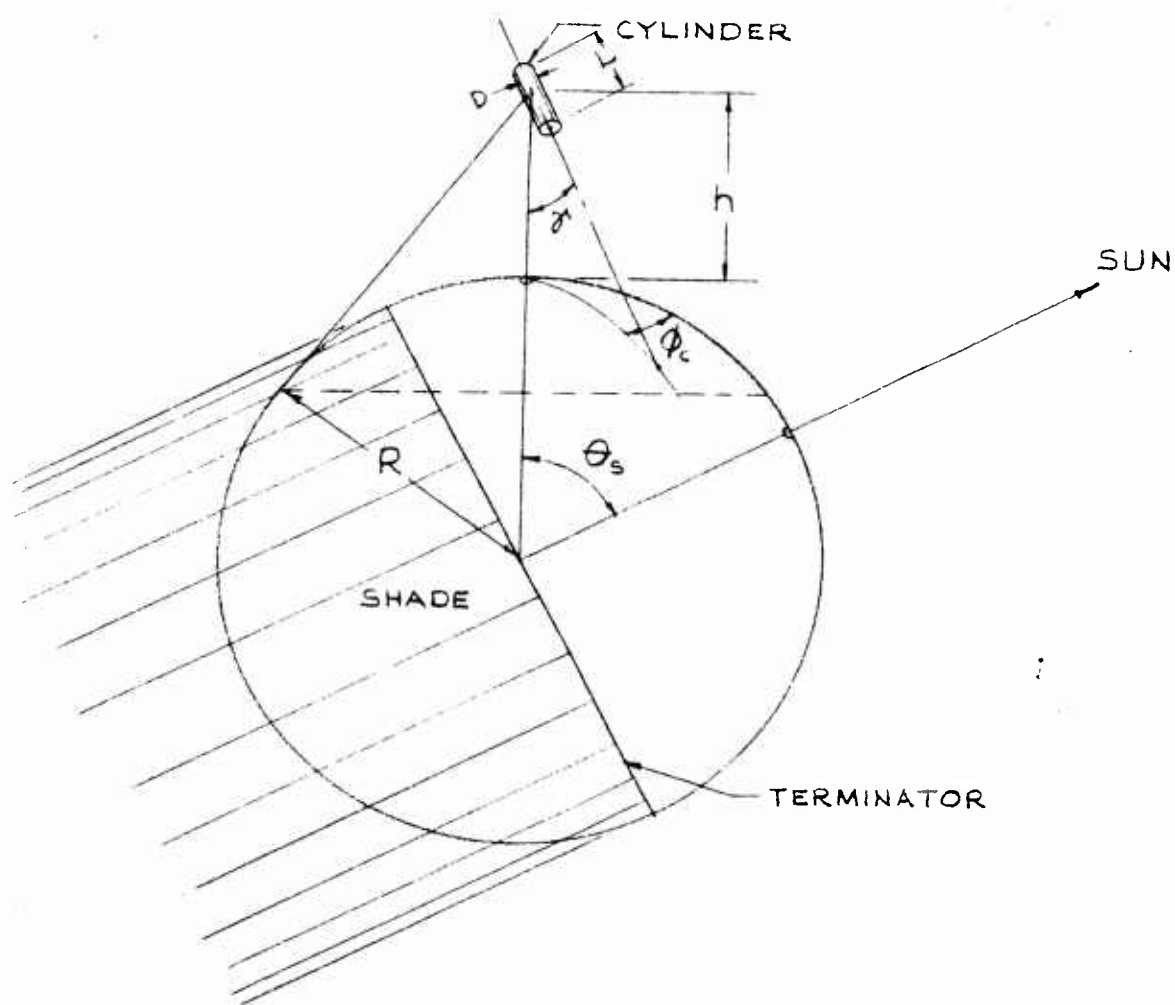
Table 7. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$\gamma = 0°$ (vertical), $\phi_c = 0 - 360°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.1160	1000	70	0.1305
100	20	1.0487	1000	80	0.0766
100	30	0.9665	1000	85	0.0540
100	40	0.8549	1000	90	0.0354
100	50	0.7174	1000	95	0.0212
100	60	0.5580	3000	0	0.0951
100	70	0.3817	3000	20	0.0896
100	80	0.1910	3000	30	0.0827
100	85	0.0966	3000	40	0.0733
100	90	0.0206	3000	50	0.0619
100	95	0.0016	3000	60	0.0495
300	0	0.7974	3000	70	0.0371
300	20	0.7493	3000	80	0.0260
300	30	0.6905	3000	85	0.0211
300	40	0.6108	3000	90	0.0166
300	50	0.5125	3000	95	0.0127
300	60	0.3987	6000	0	0.0260
300	70	0.2719	6000	20	0.0245
300	80	0.1388	6000	30	0.0227
300	85	0.0787	6000	40	0.0202
300	90	0.0336	6000	50	0.0173
300	95	0.0100	6000	60	0.0143
600	0	0.5527	6000	70	0.0113
600	20	0.5199	6000	80	0.0085
600	30	0.4784	6000	85	0.0073
600	40	0.4244	6000	90	0.0061
600	50	0.3565	6000	95	0.0050
600	60	0.2772	10000	0	0.0082
600	70	0.1898	10000	20	0.0077
600	80	0.1037	10000	30	0.0071
600	85	0.0667	10000	40	0.0064
600	90	0.0378	10000	50	0.0056
600	95	0.0182	10000	60	0.0047
1000	0	0.3723	10000	70	0.0038
1000	20	0.3504	10000	80	0.0030
1000	30	0.3232	10000	85	0.0026
1000	40	0.2861	10000	90	0.0022
1000	50	0.2404	10000	95	0.0019
1000	60	0.1873			

Table 8. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$$\gamma = 30°, \qquad \phi_c = 0°$$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.1311	1000	70	0.1251
100	20	1.0601	1000	80	0.0628
100	30	0.9755	1000	85	0.0386
100	40	0.8613	1000	90	0.0218
100	50	0.7208	1000	95	0.0116
100	60	0.5585	3000	0	0.1462
100	70	0.3792	3000	20	0.1312
100	80	0.1881	3000	30	0.1175
100	85	0.0914	3000	40	0.1003
100	90	0.0153	3000	50	0.0804
100	95	0.0012	3000	60	0.0595
300	0	0.8453	3000	70	0.0396
300	20	0.7882	3000	80	0.0230
300	30	0.7231	3000	85	0.0165
300	40	0.6360	3000	90	0.0114
300	50	0.5296	3000	95	0.0076
300	60	0.4072	6000	0	0.0578
300	70	0.2716	6000	20	0.0518
300	80	0.1300	6000	30	0.0464
300	85	0.0664	6000	40	0.0397
300	90	0.0232	6000	50	0.0324
300	95	0.0068	6000	60	0.0248
600	0	0.6052	6000	70	0.0178
600	20	0.5607	6000	80	0.0118
600	30	0.5125	6000	85	0.0093
600	40	0.4486	6000	90	0.0071
600	50	0.3712	6000	95	0.0054
600	60	0.2824	10000	0	0.0260
600	70	0.1853	10000	20	0.0235
600	80	0.0901	10000	30	0.0212
600	85	0.0510	10000	40	0.0184
600	90	0.0245	10000	50	0.0153
600	95	0.0109	10000	60	0.0122
1000	0	0.4325	10000	70	0.0092
1000	20	0.3973	10000	80	0.0065
1000	30	0.3613	10000	85	0.0054
1000	40	0.3143	10000	90	0.0044
1000	50	0.2577	10000	95	0.0035
1000	60	0.1930			

Table 9.   GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$\gamma = 30°$, $\phi_c = 30°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.1311	1000	70	0.1288
100	20	1.0605	1000	80	0.0664
100	30	0.9761	1000	85	0.0419
100	40	0.8620	1000	90	0.0245
100	50	0.7217	1000	95	0.0135
100	60	0.5595	3000	0	0.1463
100	70	0.3802	3000	20	0.1522
100	80	0.1892	3000	30	0.1189
100	85	0.0924	3000	40	0.1020
100	90	0.0161	3000	50	0.0824
100	95	0.0013	3000	60	0.0617
300	0	0.8453	3000	70	0.0419
300	20	0.7890	3000	80	0.0252
300	30	0.7243	3000	85	0.0185
300	40	0.6375	3000	90	0.0132
300	50	0.5314	3000	95	0.0091
300	60	0.4092	6000	0	0.0578
300	70	0.2738	6000	20	0.0522
300	80	0.1324	6000	30	0.0469
300	85	0.0687	6000	40	0.0404
300	90	0.0250	6000	50	0.0332
300	95	0.0074	6000	60	0.0257
600	0	0.6054	6000	70	0.0187
600	20	0.5621	6000	80	0.0126
600	30	0.5144	6000	85	0.0100
600	40	0.4510	6000	90	0.0078
600	50	0.3739	6000	95	0.0060
600	60	0.2855	10000	0	0.0261
600	70	0.1888	10000	20	0.0237
600	80	0.0934	10000	30	0.0214
600	85	0.0540	10000	40	0.0187
600	90	0.0269	10000	50	0.0156
600	95	0.0123	10000	60	0.0125
1000	0	0.4327	10000	70	0.0095
1000	20	0.3988	10000	80	0.0068
1000	30	0.3634	10000	85	0.0056
1000	40	0.3169	10000	90	0.0046
1000	50	0.2607	10000	95	0.0037
1000	60	0.1964			

Table 10. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$\gamma = 30°$, $\phi_c = 60°$

Altitude n. m.	Θ_S degrees	F	Altitude n. m.	Θ_S degrees	F
100	0	1.1311	1000	70	0.1386
100	20	1.0615	1000	80	0.0759
100	30	0.9776	1000	85	0.0505
100	40	0.8639	1000	90	0.0314
100	50	0.7240	1000	95	0.0182
100	60	0.5620	3000	0	0.1466
100	70	0.3830	3000	20	0.1348
100	80	0.1920	3000	30	0.1226
100	85	0.0953	3000	40	0.1067
100	90	0.0181	3000	50	0.0880
100	95	0.0014	3000	60	0.0678
300	0	0.8453	3000	70	0.0480
300	20	0.7912	3000	80	0.0309
300	30	0.7276	3000	85	0.0237
300	40	0.6418	3000	90	0.0178
300	50	0.5365	3000	95	0.0129
300	60	0.4149	6000	0	0.0579
300	70	0.2800	6000	20	0.0532
300	80	0.1387	6000	30	0.0484
300	85	0.0748	6000	40	0.0423
300	90	0.0294	6000	50	0.0353
300	95	0.0087	6000	60	0.0280
600	0	0.6062	6000	70	0.0210
600	20	0.5660	6000	80	0.0147
600	30	0.5197	6000	85	0.0120
600	40	0.4575	6000	90	0.0096
600	50	0.3815	6000	95	0.0075
600	60	0.2938	10000	0	0.0261
600	70	0.1975	10000	20	0.0241
600	80	0.1022	10000	30	0.0220
600	85	0.0621	10000	40	0.0194
600	90	0.0330	10000	50	0.0164
600	95	0.0156	10000	60	0.0133
1000	0	0.4333	10000	70	0.0103
1000	20	0.4030	10000	80	0.0076
1000	30	0.3691	10000	85	0.0063
1000	40	0.3240	10000	90	0.0052
1000	50	0.2690	10000	95	0.0042
1000	60	0.2057			

Table 11. GEOMETRIC FACTOR FOR ALBEDO TO A **CYLINDER**

$\delta = 30,$ $\phi_c = 90°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.1312	1000	70	0.1520
100	20	1.0629	1000	80	0.0884
100	30	0.9796	1000	85	0.0613
100	40	0.8665	1000	90	0.0394
100	50	0.7271	1000	95	0.0230
100	60	0.5656	3000	0	0.1469
100	70	0.3868	3000	20	0.1384
100	80	0.1959	3000	30	0.1277
100	85	0.0992	3000	40	0.1132
100	90	0.0205	3000	50	0.0955
100	95	0.0015	3000	60	0.0760
300	0	0.8453	3000	70	0.0562
300	20	0.7943	3000	80	0.0382
300	30	0.7320	3000	85	0.0302
300	40	0.6475	3000	90	0.0232
300	50	0.5433	3000	95	0.0172
300	60	0.4226	6000	0	0.0580
300	70	0.2884	6000	20	0.0547
300	80	0.1473	6000	30	0.0505
300	85	0.0828	6000	40	0.0449
300	90	0.0344	6000	50	0.0383
300	95	0.0101	6000	60	0.0311
600	0	0.6077	6000	70	0.0240
600	20	0.5716	6000	80	0.0174
600	30	0.5271	6000	85	0.0144
600	40	0.4666	6000	90	0.0117
600	50	0.3919	6000	95	0.0093
600	60	0.3053	10000	0	0.0261
600	70	0.2096	10000	20	0.0246
600	80	0.1140	10000	30	0.0228
600	85	0.0725	10000	40	0.0203
600	90	0.0401	10000	50	0.0175
600	95	0.0189	10000	60	0.0145
1000	0	0.4344	10000	70	0.0114
1000	20	0.4088	10000	80	0.0086
1000	30	0.3771	10000	85	0.0072
1000	40	0.3339	10000	90	0.0060
1000	50	0.2805	10000	95	0.0049
1000	60	0.2185			

Table 12. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$\gamma = 30°,$ $\phi_c = 120°$

Altitude n. m.	Θ_S degrees	F	Altitude n. m.	Θ_S degrees	F
100	0	1.1312	1000	70	0.1653
100	20	1.0643	1000	80	0.1001
100	30	0.9816	1000	85	0.0709
100	40	0.8691	1000	90	0.0457
100	50	0.7302	1000	95	0.0266
100	60	0.5691	3000	0	0.1475
100	70	0.3907	3000	20	0.1422
100	80	0.1998	3000	30	0.1330
100	85	0.1050	3000	40	0.1197
100	90	0.0222	3000	50	0.1031
100	95	0.0016	3000	60	0.0840
300	0	0.8453	3000	70	0.0640
300	20	0.7974	3000	80	0.0446
300	30	0.7365	3000	85	0.0356
300	40	0.6533	3000	90	0.0275
300	50	0.5502	3000	95	0.0205
300	60	0.4304	6000	0	0.0582
300	70	0.2968	6000	20	0.0561
300	80	0.1557	6000	30	0.0525
300	85	0.0903	6000	40	0.0474
300	90	0.0383	6000	50	0.0412
300	95	0.0109	6000	60	0.0341
600	0	0.6099	6000	70	0.0268
600	20	0.5779	6000	80	0.0198
600	30	0.5352	6000	85	0.0165
600	40	0.4762	6000	90	0.0135
600	50	0.4028	6000	95	0.0108
600	60	0.3170	10000	0	0.0262
600	70	0.2219	10000	20	0.0252
600	80	0.1254	10000	30	0.0236
600	85	0.0819	10000	40	0.0213
600	90	0.0457	10000	50	0.0186
600	95	0.0213	10000	60	0.0156
1000	0	0.4360	10000	70	0.0125
1000	20	0.4151	10000	80	0.0095
1000	30	0.3854	10000	85	0.0081
1000	40	0.3440	10000	90	0.0068
1000	50	0.2922	10000	95	0.0056
1000	60	0.2314			

Table 13. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$$\gamma = 30°, \qquad \phi_c = 150°$$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.1312	1000	70	0.1749
100	20	1.0654	1000	80	0.1080
100	30	0.9831	1000	85	0.0768
100	40	0.8710	1000	90	0.0494
100	50	0.7325	1000	95	0.0285
100	60	0.5716	3000	0	0.1480
100	70	0.3934	3000	20	0.1451
100	80	0.2027	3000	30	0.1369
100	85	0.1058	3000	40	0.1246
100	90	0.0231	3000	50	0.1086
100	95	0.0016	3000	60	0.0897
300	0	0.8453	3000	70	0.0692
300	20	0.7996	3000	80	0.0486
300	30	0.7398	3000	85	0.0390
300	40	0.6575	3000	90	0.0301
300	50	0.5552	3000	95	0.0225
300	60	0.4360	6000	0	0.0583
300	70	0.3029	6000	20	0.0572
300	80	0.1618	6000	30	0.0541
300	85	0.0955	6000	40	0.0493
300	90	0.0405	6000	50	0.0432
300	95	0.0113	6000	60	0.0362
600	0	0.6124	6000	70	0.0288
600	20	0.5833	6000	80	0.0214
600	30	0.5418	6000	85	0.0179
600	40	0.4838	6000	90	0.0147
600	50	0.4111	6000	95	0.0117
600	60	0.3259	10000	0	0.0262
600	70	0.2310	10000	20	0.0256
600	80	0.1334	10000	30	0.0241
600	85	0.0879	10000	40	0.0220
600	90	0.0489	10000	50	0.0193
600	95	0.0225	10000	60	0.0163
1000	0	0.4379	10000	70	0.0132
1000	20	0.4202	10000	80	0.0101
1000	30	0.3920	10000	85	0.0086
1000	40	0.3519	10000	90	0.0072
1000	50	0.3011	10000	95	0.0060
1000	60	0.2410			

Table 14. GEOMETRIC FACTOR FOR ALBEDO TO A **CYLINDER**

$\lambda = 30°$, $\phi_c = 180°$

Altitude n. m.	Θ_s degrees	F	Altitude n. m.	Θ_s degrees	F
100	0	1.1312	1000	70	0.1785
100	20	1.0657	1000	80	0.1107
100	30	0.9837	1000	85	0.0787
100	40	0.8717	1000	90	0.0505
100	50	0.7333	1000	95	0.0291
100	60	0.5726	3000	0	0.1484
100	70	0.3945	3000	20	0.1462
100	80	0.2037	3000	30	0.1384
100	85	0.1068	3000	40	0.1264
100	90	0.0233	3000	50	0.1106
100	95	0.0016	3000	60	0.0917
300	0	0.8453	3000	70	0.0710
300	20	0.8004	3000	80	0.0499
300	30	0.7410	3000	85	0.0401
300	40	0.6590	3000	90	0.0310
300	50	0.5570	3000	95	0.0231
300	60	0.4381	6000	0	0.0584
300	70	0.3051	6000	20	0.0576
300	80	0.1640	6000	30	0.0546
300	85	0.0972	6000	40	0.0500
300	90	0.0411	6000	50	0.0440
300	95	0.0114	6000	60	0.0370
600	0	0.6135	6000	70	0.0294
600	20	0.5854	6000	80	0.0219
600	30	0.5443	6000	85	0.0184
600	40	0.4867	6000	90	0.0151
600	50	0.4143	6000	95	0.0121
600	60	0.3292	10000	0	0.0262
600	70	0.2343	10000	20	0.0258
600	80	0.1362	10000	30	0.0243
600	85	0.0899	10000	40	0.0222
600	90	0.0499	10000	50	0.0196
600	95	0.0229	10000	60	0.0166
1000	0	0.4389	10000	70	0.0134
1000	20	0.4224	10000	80	0.0103
1000	30	0.3947	10000	85	0.0088
1000	40	0.3550	10000	90	0.0074
1000	50	0.3045	10000	95	0.0061
1000	60	0.2446			

Table 15. GEOMETRIC FACTOR FOR ALBEDO TO A **CYLINDER**

$\gamma = 60°$, $\phi_c = 0°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.2133	1000	70	0.1762
100	20	1.1369	1000	80	0.0912
100	30	1.0460	1000	85	0.0564
100	40	0.9234	1000	90	0.0307
100	50	0.7727	1000	95	0.0149
100	60	0.5985	3000	0	0.2292
100	70	0.4061	3000	20	0.2117
100	80	0.2003	3000	30	0.1931
100	85	0.0963	3000	40	0.1686
100	90	0.0123	3000	50	0.1394
100	95	0.0006	3000	60	0.1076
300	0	0.9612	3000	70	0.0760
300	20	0.8966	3000	80	0.0480
300	30	0.8227	3000	85	0.0362
300	40	0.7238	3000	90	0.0264
300	50	0.6029	3000	95	0.0185
300	60	0.4637	6000	0	0.0962
300	70	0.3097	6000	20	0.0891
300	80	0.1483	6000	30	0.0814
300	85	0.0736	6000	40	0.0714
300	90	0.0211	6000	50	0.0599
300	95	0.0041	6000	60	0.0477
600	0	0.7441	6000	70	0.0358
600	20	0.6915	6000	80	0.0250
600	30	0.6331	6000	85	0.0203
600	40	0.5555	6000	90	0.0161
600	50	0.4610	6000	95	0.0125
600	60	0.3521	10000	0	0.0444
600	70	0.2325	10000	20	0.0412
600	80	0.1140	10000	30	0.0378
600	85	0.0631	10000	40	0.0334
600	90	0.0274	10000	50	0.0284
600	95	0.0090	10000	60	0.0232
1000	0	0.5712	10000	70	0.0180
1000	20	0.5291	10000	80	0.0132
1000	30	0.4835	10000	85	0.0111
1000	40	0.4232	10000	90	0.0091
1000	50	0.3500	10000	95	0.0074
1000	60	0.2658			

CONVAIR ASTRONAUTICS

Table 16. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$\gamma = 60°$, $\phi_c = 30°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.2133	1000	70	0.1794
100	20	1.1373	1000	80	0.0945
100	30	1.0467	1000	85	0.0596
100	40	0.9243	1000	90	0.0335
100	50	0.7736	1000	95	0.0171
100	60	0.5996	3000	0	0.2293
100	70	0.4073	3000	20	0.2123
100	80	0.2015	3000	30	0.1939
100	85	0.0976	3000	40	0.1697
100	90	0.0137	3000	50	0.1407
100	95	0.0009	3000	60	0.1091
300	0	0.9613	3000	70	0.0776
300	20	0.8975	3000	80	0.0494
300	30	0.8240	3000	85	0.0378
300	40	0.7255	3000	90	0.0276
300	50	0.6049	3000	95	0.0195
300	60	0.4660	6000	0	0.0962
300	70	0.3121	6000	20	0.0893
300	80	0.1510	6000	30	0.0817
300	85	0.0764	6000	40	0.0718
300	90	0.0237	6000	50	0.0604
300	95	0.0054	6000	60	0.0482
600	0	0.7438	6000	70	0.0363
600	20	0.6924	6000	80	0.0255
600	30	0.6346	6000	85	0.0207
600	40	0.5575	6000	90	0.0165
600	50	0.4634	6000	95	0.0128
600	60	0.3549	10000	0	0.0444
600	70	0.2356	10000	20	0.0413
600	80	0.1174	10000	30	0.0379
600	85	0.0665	10000	40	0.0336
600	90	0.0304	10000	50	0.0286
600	95	0.0117	10000	60	0.0233
1000	0	0.5712	10000	70	0.0182
1000	20	0.5302	10000	80	0.0134
1000	30	0.4851	10000	85	0.0112
1000	40	0.4253	10000	90	0.0093
1000	50	0.3525	10000	95	0.0075
1000	60	0.2686			

Table 17. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$\gamma = 60°$, $\phi_c = 60°$

Altitude n. m.	Θ_S degrees	F	Altitude n. m.	Θ_S degrees	F
100	0	1.2133	1000	70	0.1880
100	20	1.1386	1000	80	0.1032
100	30	1.0484	1000	85	0.0678
100	40	0.9264	1000	90	0.0405
100	50	0.7763	1000	95	0.0222
100	60	0.6026	3000	0	0.2294
100	70	0.4105	3000	20	0.2139
100	80	0.2049	3000	30	0.1963
100	85	0.1012	3000	40	0.1727
100	90	0.0172	3000	50	0.1443
100	95	0.0013	3000	60	0.1130
300	0	0.9613	3000	70	0.0816
300	20	0.9000	3000	80	0.0532
300	30	0.8276	3000	85	0.0410
300	40	0.7301	3000	90	0.0306
300	50	0.6104	3000	95	0.0221
300	60	0.4722	6000	0	0.0962
300	70	0.3188	6000	20	0.0899
300	80	0.1580	6000	30	0.0826
300	85	0.0838	6000	40	0.0730
300	90	0.0300	6000	50	0.0617
300	95	0.0082	6000	60	0.0496
600	0	0.7439	6000	70	0.0377
600	20	0.6955	6000	80	0.0267
600	30	0.6391	6000	85	0.0219
600	40	0.5633	6000	90	0.0176
600	50	0.4704	6000	95	0.0138
600	60	0.3628	10000	0	0.0444
600	70	0.2442	10000	20	0.0416
600	80	0.1265	10000	30	0.0383
600	85	0.0754	10000	40	0.0340
600	90	0.0378	10000	50	0.0291
600	95	0.0165	10000	60	0.0238
1000	0	0.5713	10000	70	0.0187
1000	20	0.5334	10000	80	0.0138
1000	30	0.4898	10000	85	0.0116
1000	40	0.4312	10000	90	0.0096
1000	50	0.3595	10000	95	0.0078
1000	60	0.2765			

Table 18. GEOMETRIC FACTOR FOR ALBEDO FOR A CYLINDER

$\gamma = 60,$ $\phi_c = 90$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.2134	1000	70	0.1995
100	20	1.1402	1000	80	0.1142
100	30	1.0508	1000	85	0.0775
100	40	0.9295	1000	90	0.0480
100	50	0.7799	1000	95	0.0271
100	60	0.6067	3000	0	0.2297
100	70	0.4150	3000	20	0.2163
100	80	0.2095	3000	30	0.1996
100	85	0.1058	3000	40	0.1768
100	90	0.0205	3000	50	0.1491
100	95	0.0015	3000	60	0.1183
300	0	0.9613	3000	70	0.0869
300	20	0.9034	3000	80	0.0579
300	30	0.8325	3000	85	0.0452
300	40	0.7364	3000	90	0.0342
300	50	0.6179	3000	95	0.0249
300	60	0.4806	6000	0	0.0963
300	70	0.3280	6000	20	0.0908
300	80	0.1674	6000	30	0.0838
300	85	0.0929	6000	40	0.0745
300	90	0.0364	6000	50	0.0634
300	95	0.0102	6000	60	0.0515
600	0	0.7448	6000	70	0.0395
600	20	0.7006	6000	80	0.0283
600	30	0.6461	6000	85	0.0234
600	40	0.5719	6000	90	0.0188
600	50	0.4803	6000	95	0.0148
600	60	0.3738	10000	0	0.0444
800	70	0.2560	10000	20	0.0419
600	80	0.1382	10000	30	0.0387
600	85	0.0860	10000	40	0.0346
600	90	0.0456	10000	50	0.0297
600	95	0.0206	10000	60	0.0245
1000	0	0.5721	10000	70	0.0193
1000	20	0.5383	10000	80	0.0144
1000	30	0.4965	10000	85	0.0122
1000	40	0.4396	10000	90	0.0101
1000	50	0.3694	10000	95	0.0083
1000	60	0.2875			

Table 19. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$\gamma = 60°,$ $\phi_c = 120°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_c degrees	F
100	0	1.2134	1000	70	0.2108
100	20	1.1418	1000	80	0.1237
100	30	1.0532	1000	85	0.0849
100	40	0.9325	1000	90	0.0529
100	50	0.7835	1000	95	0.0298
100	60	0.6107	3000	0	0.2300
100	70	0.4194	3000	20	0.2187
100	80	0.2141	3000	30	0.2030
100	85	0.1102	3000	40	0.1810
100	90	0.0219	3000	50	0.1539
100	95	0.0015	3000	60	0.1234
300	0	0.9614	3000	70	0.0917
300	20	0.9067	3000	80	0.0619
300	30	0.8374	3000	85	0.0486
300	40	0.7427	3000	90	0.0369
300	50	0.6254	3000	95	0.0270
300	60	0.4891	6000	0	0.0964
300	70	0.3371	6000	20	0.0917
300	80	0.1765	6000	30	0.0850
300	85	0.1005	6000	40	0.0760
300	90	0.0398	6000	50	0.0652
300	95	0.0108	6000	60	0.0533
600	0	0.7470	6000	70	0.0412
600	20	0.7067	6000	80	0.0298
600	30	0.6539	6000	85	0.0246
600	40	0.5812	6000	90	0.0199
600	50	0.4909	6000	95	0.0158
600	60	0.3852	10000	0	0.0444
600	70	0.2679	10000	20	0.0422
600	80	0.1488	10000	30	0.0392
600	85	0.0942	10000	40	0.0351
600	90	0.0502	10000	50	0.0303
600	95	0.0224	10000	60	0.0252
1000	0	0.5736	10000	70	0.0199
1000	20	0.5438	10000	80	0.0149
1000	50	0.5038	10000	85	0.0127
1000	10	0.4484	10000	90	0.0105
1000	50	0.3794	10000	95	0.0086
1000	60	0.2985			

Table 20. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$\gamma = 60^\circ,$ $\phi_c = 150^\circ$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.2134	1000	70	0.2187
100	20	1.1430	1000	80	0.1294
100	30	1.0549	1000	85	0.0888
100	40	0.9347	1000	90	0.0549
100	50	0.7862	1000	95	0.0306
100	60	0.6137	3000	0	0.2304
100	70	0.4226	3000	20	0.2206
100	80	0.2175	3000	30	0.2055
100	85	0.1132	3000	40	0.1841
100	90	0.0219	3000	50	0.1575
100	95	0.0013	3000	60	0.1270
300	0	0.9614	3000	70	0.0950
300	20	0.9092	3000	80	0.0644
300	30	0.8410	3000	85	0.0507
300	40	0.7473	3000	90	0.0385
300	50	0.6309	3000	95	0.0282
300	60	0.4953	6000	0	0.0965
300	70	0.3438	6000	20	0.0923
300	80	0.1827	6000	30	0.0860
300	85	0.1048	6000	40	0.0771
300	90	0.0406	6000	50	0.0664
300	95	0.0105	6000	60	0.0545
600	0	0.7499	6000	70	0.0423
600	20	0.7123	6000	80	0.0307
600	30	0.6606	6000	85	0.0254
600	40	0.5888	6000	90	0.0206
600	50	0.4992	6000	95	0.0163
600	60	0.3940	10000	0	0.0445
600	70	0.2766	10000	20	0.0424
600	80	0.1555	10000	30	0.0395
600	85	0.0985	10000	40	0.0355
600	90	0.0518	10000	50	0.0308
600	95	0.0226	10000	60	0.0256
1000	0	0.5755	10000	70	0.0203
1000	20	0.5485	10000	80	0.0153
1000	30	0.5096	10000	85	0.0130
1000	40	0.4553	10000	90	0.0108
1000	50	0.3871	10000	95	0.0089
1000	60	0.3067			

Table 21. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$\gamma = 60°$, $\phi_c = 180°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.2134	1000	70	0.2215
100	20	1.1434	1000	80	0.1312
100	30	1.0555	1000	85	0.0900
100	40	0.9355	1000	90	0.0554
100	50	0.7871	1000	95	0.0307
100	60	0.6148	3000	0	0.2305
100	70	0.4238	3000	20	0.2213
100	80	0.2187	3000	30	0.2064
100	85	0.1142	3000	40	0.1853
100	90	0.0217	3000	50	0.1587
100	95	0.0012	3000	60	0.1283
300	0	0.9614	3000	70	0.0961
300	20	0.9100	3000	80	0.0652
300	30	0.8423	3000	85	0.0513
300	40	0.7490	3000	90	0.0390
300	50	0.6329	3000	95	0.0285
300	60	0.4975	6000	0	0.0965
300	70	0.3462	6000	20	0.0925
300	80	0.1848	6000	30	0.0863
300	85	0.1060	6000	40	0.0775
300	90	0.0406	6000	50	0.0669
300	95	0.0102	6000	60	0.0550
600	0	0.7515	6000	70	0.0427
600	20	0.7148	6000	80	0.0311
600	30	0.6634	6000	85	0.0257
600	40	0.5919	6000	90	0.0208
600	50	0.5024	6000	95	0.0165
600	60	0.3973	10000	0	0.0445
600	70	0.2797	10000	20	0.0425
600	80	0.1576	10000	30	0.0396
600	85	0.0997	10000	40	0.0357
600	90	0.0521	10000	50	0.0310
600	95	0.0225	10000	60	0.0258
1000	0	0.5763	10000	70	0.0205
1000	20	0.5502	10000	80	0.0154
1000	30	0.5118	10000	85	0.0131
1000	40	0.4578	10000	90	0.0109
1000	50	0.3899	10000	95	0.0089
1000	60	0.3097			

Table 22. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$$\gamma = 90°, \qquad \phi_c = 0°$$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.2702	1000	70	0.2216
100	20	1.1936	1000	80	0.1238
100	30	1.1000	1000	85	0.0813
100	40	0.9730	1000	90	0.0478
100	50	0.8164	1000	95	0.0252
100	60	0.6351	3000	0	0.2620
100	70	0.4344	3000	20	0.2467
100	80	0.2193	3000	30	0.2277
100	85	0.1099	3000	40	0.2016
100	90	0.0164	3000	50	0.1699
100	95	0.0007	3000	60	0.1345
300	0	1.0357	3000	70	0.0982
300	20	0.9733	3000	80	0.0645
300	30	0.8970	3000	85	0.0499
300	40	0.7934	3000	90	0.0373
300	50	0.6657	3000	95	0.0268
300	60	0.5178	6000	0	0.1107
300	70	0.3534	6000	20	0.1043
300	80	0.1793	6000	30	0.0963
300	85	0.0960	6000	40	0.0856
300	90	0.0320	6000	50	0.0728
300	95	0.0070	6000	60	0.0590
600	0	0.8221	6000	70	0.0451
600	20	0.7731	6000	80	0.0322
600	30	0.7127	6000	85	0.0264
600	40	0.6308	6000	90	0.0212
600	50	0.5296	6000	95	0.0167
600	60	0.4120	10000	0	0.0512
600	70	0.2815	10000	20	0.0482
600	80	0.1490	10000	30	0.0446
600	85	0.0890	10000	40	0.0398
600	90	0.0431	10000	50	0.0342
600	95	0.0172	10000	60	0.0282
1000	0	0.6394	10000	70	0.0222
1000	20	0.6015	10000	80	0.0166
1000	30	0.5546	10000	85	0.0139
1000	40	0.4910	10000	90	0.0116
1000	50	0.4124	10000	95	0.0094
1000	60	0.3207			

Table 23. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$\delta = 90°$, $\phi_c = 30°$

Altitude n. m.	θ_S degrees	F	Altitude n. m.	θ_S degrees	F
100	0	1.2702	1000	70	0.2217
100	20	1.1936	1000	80	0.1245
100	30	1.1000	1000	85	0.0823
100	40	0.9730	1000	90	0.0489
100	50	0.8164	1000	95	0.0262
100	60	0.6351	3000	0	0.2619
100	70	0.4344	3000	20	0.2466
100	80	0.2193	3000	30	0.2276
100	85	0.1101	3000	40	0.2016
100	90	0.0174	3000	50	0.1699
100	95	0.0009	3000	60	0.1345
300	0	1.0357	3000	70	0.0983
300	20	0.9733	3000	80	0.0648
300	30	0.8970	3000	85	0.0502
300	40	0.7934	3000	90	0.0376
300	50	0.6657	3000	95	0.0271
300	60	0.5178	6000	0	0.1107
300	70	0.3534	6000	20	0.1043
300	80	0.1795	6000	30	0.0963
300	85	0.0969	6000	40	0.0855
300	90	0.0334	6000	50	0.0728
300	95	0.0078	6000	60	0.0590
600	0	0.8209	6000	70	0.0451
600	20	0.7721	6000	80	0.0323
600	30	0.7119	6000	85	0.0265
600	40	0.6300	6000	90	0.0213
600	50	0.5291	6000	95	0.0167
600	60	0.4116	10000	0	0.0512
600	70	0.2814	10000	20	0.0482
600	80	0.1496	10000	30	0.0446
600	85	0.0901	10000	40	0.0398
600	90	0.0444	10000	50	0.0342
600	95	0.0183	10000	60	0.0282
1000	0	0.6387	10000	70	0.0222
1000	20	0.6009	10000	80	0.0165
1000	30	0.5542	10000	85	0.0139
1000	40	0.4906	10000	90	0.0116
1000	50	0.4121	10000	95	0.0094
1000	60	0.3205			

Table 24. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$\gamma = 90°$, $\rho_c = 60°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.2702	1000	70	0.2220
100	20	1.1936	1000	80	0.1259
100	30	1.1000	1000	85	0.0843
100	40	0.9730	1000	90	0.0511
100	50	0.8164	1000	95	0.0282
100	60	0.6351	3000	0	0.2618
100	70	0.4344	3000	20	0.2465
100	80	0.2193	3000	30	0.2275
100	85	0.1105	3000	40	0.2016
100	90	0.0194	3000	50	0.1699
100	95	0.0013	3000	60	0.1347
300	0	1.0357	3000	70	0.0986
300	20	0.9733	3000	80	0.0653
300	30	0.8970	3000	85	0.0508
300	40	0.7934	3000	90	0.0382
300	50	0.6657	3000	95	0.0277
300	60	0.5178	6000	0	0.1106
300	70	0.3534	6000	20	0.1043
300	80	0.1801	6000	30	0.0963
300	85	0.0986	6000	40	0.0856
300	90	0.0363	6000	50	0.0728
300	95	0.0095	6000	60	0.0591
600	0	0.8196	6000	70	0.0452
600	20	0.7709	6000	80	0.0324
600	30	0.7108	6000	85	0.0267
600	40	0.6292	6000	90	0.0215
600	50	0.5285	6000	95	0.0169
600	60	0.4112	10000	0	0.0512
600	70	0.2814	10000	20	0.0482
600	80	0.1508	10000	30	0.0446
600	85	0.0923	10000	40	0.0398
600	90	0.0473	10000	50	0.0342
600	95	0.0205	10000	60	0.0282
1000	0	0.6379	10000	70	0.0222
1000	20	0.6002	10000	80	0.0166
1000	30	0.5536	10000	85	0.0140
1000	40	0.4901	10000	90	0.0116
1000	50	0.4118	10000	95	0.0095
1000	60	0.3204			

Table 25. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$$\gamma = 90°, \qquad \phi_c = 90°$$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.2702	1000	70	0.2222
100	20	1.1936	1000	80	0.1266
100	30	1.1000	1000	85	0.0853
100	40	0.9730	1000	90	0.0523
100	50	0.8164	1000	95	0.0292
100	60	0.6351	3000	0	0.2617
100	70	0.4344	3000	20	0.2465
100	80	0.2193	3000	30	0.2275
100	85	0.1107	3000	40	0.2015
100	90	0.0206	3000	50	0.1699
100	95	0.0015	3000	60	0.1347
300	0	1.0358	3000	70	0.0988
300	20	0.9733	3000	80	0.0656
300	30	0.8970	3000	85	0.0512
300	40	0.7934	3000	90	0.0386
300	50	0.6657	3000	95	0.0281
300	60	0.5178	6000	0	0.1106
300	70	0.3534	6000	20	0.1043
300	80	0.1803	6000	30	0.0963
300	85	0.0994	6000	40	0.0856
300	90	0.0379	6000	50	0.0729
300	95	0.0104	6000	60	0.0591
600	0	0.8192	6000	70	0.0453
600	20	0.7706	6000	80	0.0325
600	30	0.7106	6000	85	0.0267
600	40	0.6290	6000	90	0.0215
600	50	0.5283	6000	95	0.0170
600	60	0.4111	10000	0	0.0512
600	70	0.2814	10000	20	0.0482
600	80	0.1514	10000	30	0.0446
600	85	0.0934	10000	40	0.0398
600	90	0.0487	10000	50	0.0342
600	95	0.0216	10000	60	0.0282
1000	0	0.6377	10000	70	0.0222
1000	20	0.6001	10000	80	0.0166
1000	30	0.5535	10000	85	0.0140
1000	40	0.4900	10000	90	0.0116
1000	50	0.4117	10000	95	0.0095
1000	60	0.3204			

Table 26. GEOMETRIC FACTOR FOR ALBEDO TO A **CYLINDER**

$\gamma = 90°$, $\phi_c = 120°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.2702	1000	70	0.2220
100	20	1.1936	1000	80	0.1259
100	30	1.1000	1000	85	0.0843
100	40	0.9730	1000	90	0.0511
100	50	0.8164	1000	95	0.0282
100	60	0.6351	3000	0	0.2618
100	70	0.4344	3000	20	0.2466
100	80	0.2193	3000	30	0.2276
100	85	0.1105	3000	40	0.2016
100	90	0.0194	3000	50	0.1699
100	95	0.0013	3000	60	0.1347
300	0	1.0357	3000	70	0.0987
300	20	0.9733	3000	80	0.0654
300	30	0.8970	3000	85	0.0508
300	40	0.7934	3000	90	0.0382
300	50	0.6657	3000	95	0.0277
300	60	0.5178	6000	0	0.1106
300	70	0.3534	6000	20	0.1043
300	80	0.1801	6000	30	0.0963
300	85	0.0986	6000	40	0.0856
300	90	0.0363	6000	50	0.0728
300	95	0.0095	6000	60	0.0591
600	0	0.8201	6000	70	0.0452
600	20	0.7714	6000	80	0.0324
600	30	0.7113	6000	85	0.0267
600	40	0.6296	6000	90	0.0215
600	50	0.5287	6000	95	0.0169
600	60	0.4114	10000	0	0.0512
600	70	0.2815	10000	20	0.0482
600	80	0.1508	10000	30	0.0446
600	85	0.0923	10000	40	0.0398
600	90	0.0473	10000	50	0.0342
600	95	0.0205	10000	60	0.0282
1000	0	0.6383	10000	70	0.0222
1000	20	0.6005	10000	80	0.0166
1000	30	0.5538	10000	85	0.0140
1000	40	0.4903	10000	90	0.0116
1000	50	0.4119	10000	95	0.0095
1000	60	0.3205			

Table 27. GEOMETRIC FACTOR FOR ALBEDO TO A CYLINDER

$\gamma = 90°$, $\phi_c = 150°$

Altitude n. m.	θ_S degrees	F	Altitude n. m.	θ_S degrees	F
100	0	1.2702	1000	70	0.2217
100	20	1.1936	1000	80	0.1245
100	30	1.1000	1000	85	0.0823
100	40	0.9731	1000	90	0.0489
100	50	0.8165	1000	95	0.0262
100	60	0.6351	3000	0	0.2620
100	70	0.4344	3000	20	0.2467
100	80	0.2193	3000	30	0.2276
100	85	0.1101	3000	40	0.2016
100	90	0.0174	3000	50	0.1699
100	95	0.0009	3000	60	0.1346
300	0	1.0357	3000	70	0.0983
300	20	0.9733	3000	80	0.0648
300	30	0.8970	3000	85	0.0502
300	40	0.7934	3000	90	0.0376
300	50	0.6657	3000	95	0.0271
300	60	0.5178	6000	0	0.1107
300	70	0.3534	6000	20	0.1043
300	80	0.1795	6000	30	0.0963
300	85	0.0969	6000	40	0.0856
300	90	0.0334	6000	50	0.0728
300	95	0.0078	6000	60	0.0590
600	0	0.8216	6000	70	0.0451
600	20	0.7727	6000	80	0.0323
600	30	0.7124	6000	85	0.0265
600	40	0.6305	6000	90	0.0213
600	50	0.5294	6000	95	0.0167
600	60	0.4118	10000	0	0.0512
600	70	0.2815	10000	20	0.0482
600	80	0.1496	10000	30	0.0446
600	85	0.0901	10000	40	0.0398
600	90	0.0444	10000	50	0.0342
600	95	0.0182	10000	60	0.0282
1000	0	0.6391	10000	70	0.0222
1000	20	0.6012	10000	80	0.0165
1000	30	0.5544	10000	85	0.0139
1000	40	0.4908	10000	90	0.0116
1000	50	0.4123	10000	95	0.0094
1000	60	0.3206			

Table 28. GEOMETRIC FACTOR FOR ALBEDO TO A **CYLINDER**

$\delta = 90°$, $\phi_c = 180°$

Altitude n. m.	Θ_s degrees	F	Altitude n. m.	Θ_s degrees	F
100	0	1.2702	1000	70	0.2216
100	20	1.1936	1000	80	0.1238
100	30	1.1000	1000	85	0.0813
100	40	0.9730	1000	90	0.0478
100	50	0.8164	1000	95	0.0252
100	60	0.6351	3000	0	0.2620
100	70	0.4344	3000	20	0.2467
100	80	0.2193	3000	30	0.2277
100	85	0.1099	3000	40	0.2016
100	90	0.0164	3000	50	0.1699
100	95	0.0007	3000	60	0.1345
300	0	1.0357	3000	70	0.0982
300	20	0.9733	3000	80	0.0645
300	30	0.8970	3000	85	0.0499
300	40	0.7934	3000	90	0.0373
300	50	0.6657	3000	95	0.0268
300	60	0.5178	6000	0	0.1107
300	70	0.3534	6000	20	0.1043
300	80	0.1793	6000	30	0.0963
300	85	0.0960	6000	40	0.0856
300	90	0.0320	6000	50	0.0728
300	95	0.0070	6000	60	0.0590
600	0	0.8221	6000	70	0.0451
600	20	0.7731	6000	80	0.0322
600	30	0.7127	6000	85	0.0264
600	40	0.6308	6000	90	0.0212
600	50	0.5296	6000	95	0.0167
600	60	0.4120	10000	0	0.0512
600	70	0.2815	10000	20	0.0482
600	80	0.1490	10000	30	0.0446
600	85	0.0890	10000	40	0.0398
600	90	0.0431	10000	50	0.0342
600	95	0.0172	10000	60	0.0282
1000	0	0.6394	10000	70	0.0222
1000	20	0.5546	10000	80	0.0165
1000	30	0.6015	10000	85	0.0139
1000	40	0.4910	10000	90	0.0116
1000	50	0.4124	10000	95	0.0094
1000	60	0.3207			

Figure 7 . Geometry For Planetary Albedo to a Hemisphere

Geometric Factor, $F = \dfrac{q}{\pi r^2 \, Sa}$
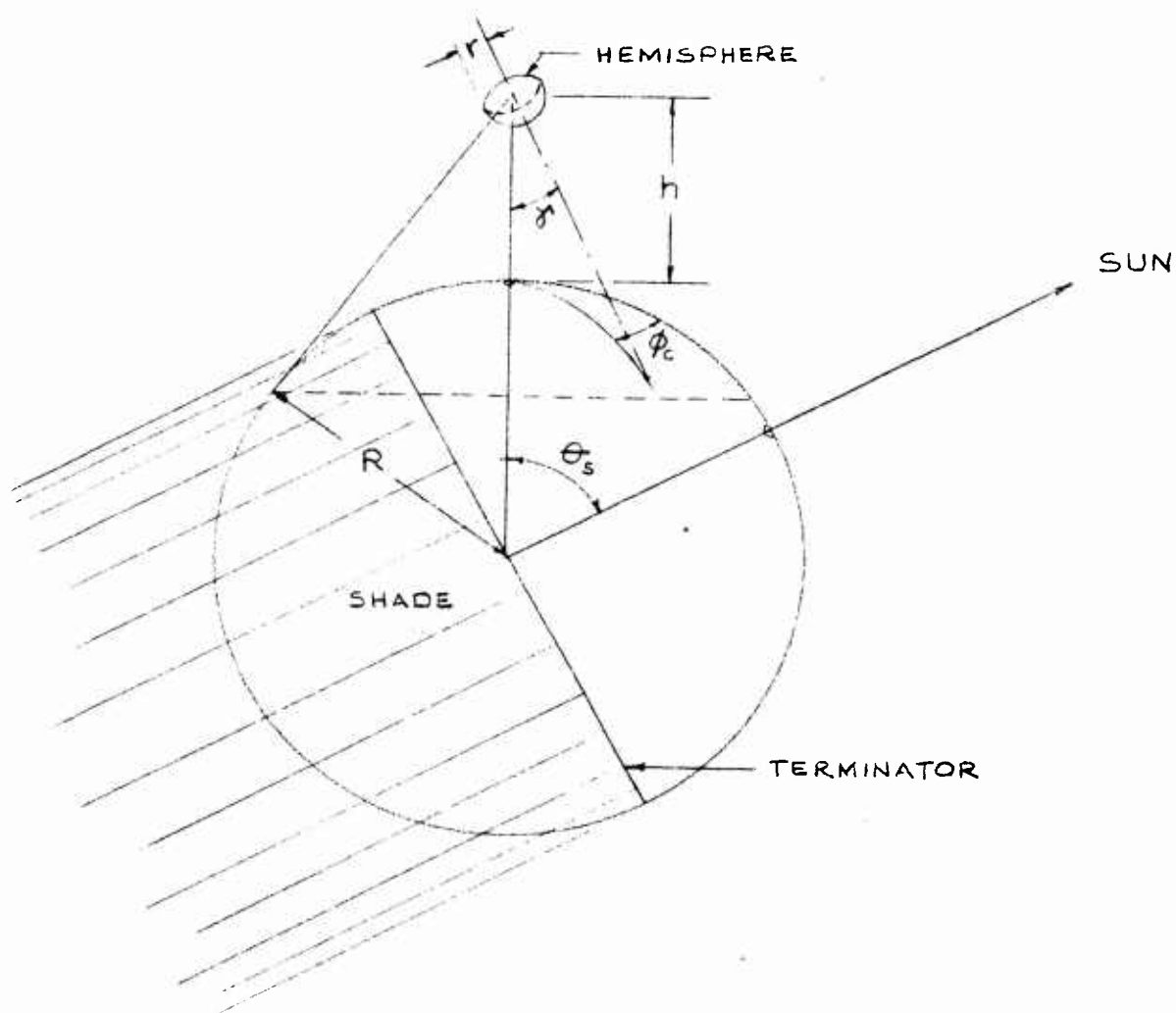
Table 29. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\delta = 0°$,　　　　$\phi_c = 0 -360°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.2438	1000	70	0.2211
100	20	1.1688	1000	80	0.1247
100	30	1.0771	1000	85	0.0829
100	40	0.9528	1000	90	0.0497
100	50	0.7995	1000	95	0.0270
100	60	0.6219	3000	0	0.2617
100	70	0.4254	3000	20	0.2465
100	80	0.2147	3000	30	0.2275
100	85	0.1079	3000	40	0.2015
100	90	0.0177	3000	50	0.1698
100	95	0.0010	3000	60	0.1345
300	0	1.0237	3000	70	0.0984
300	20	0.9620	3000	80	0.0650
300	30	0.8866	3000	85	0.0505
300	40	0.7842	3000	90	0.0379
300	50	0.6580	3000	95	0.0274
300	60	0.5118	6000	0	0.1106
300	70	0.3493	6000	20	0.1043
300	80	0.1777	6000	30	0.0963
300	85	0.0964	6000	40	0.0855
300	90	0.0342	6000	50	0.0728
300	95	0.0084	6000	60	0.0590
600	0	0.8154	6000	70	0.0452
600	20	0.7669	6000	80	0.0323
600	30	0.7071	6000	85	0.0266
600	40	0.6259	6000	90	0.0214
600	50	0.5256	6000	95	0.0168
600	60	0.4089	10000	0	0.0512
600	70	0.2796	10000	20	0.0482
600	80	0.1492	10000	30	0.0446
600	85	0.0905	10000	40	0.0398
600	90	0.0454	10000	50	0.0342
600	95	0.0191	10000	60	0.0282
1000	0	0.6363	10000	70	0.0222
1000	20	0.5987	10000	80	0.0165
1000	30	0.5521	10000	85	0.0140
1000	40	0.4888	10000	90	0.0116
1000	50	0.4106	10000	95	0.0094
1000	60	0.3194			

Table 30.   GEOMETRIC FACTOR FOR ALBEDO TO A **HEMISPHERE**

$\gamma = 30°$, $\phi_c = 0°$

Altitude n. m.	θ_S degrees	F	Altitude n. m.	θ_S degrees	F
100	0	1.1799	1000	70	0.2205
100	20	1.1115	1000	80	0.1286
100	30	1.0259	1000	85	0.0875
100	40	0.9091	1000	90	0.0538
100	50	0.7646	1000	95	0.0299
100	60	0.5969	3000	0	0.2452
100	70	0.4111	3000	20	0.2331
100	80	0.2116	3000	30	0.2163
100	85	0.1100	3000	40	0.1928
100	90	0.0210	3000	50	0.1639
100	95	0.0013	3000	60	0.1313
300	0	0.9673	3000	70	0.0973
300	20	0.9135	3000	80	0.0654
300	30	0.8443	3000	85	0.0512
300	40	0.7495	3000	90	0.0387
300	50	0.6319	3000	95	0.0283
300	60	0.4951	6000	0	0.1034
300	70	0.3424	6000	20	0.0983
300	80	0.1802	6000	30	0.0912
300	85	0.1021	6000	40	0.0815
300	90	0.0391	6000	50	0.0698
300	95	0.0102	6000	60	0.0570
600	0	0.7699	6000	70	0.0440
600	20	0.7290	6000	80	0.0317
600	30	0.6749	6000	85	0.0262
600	40	0.6002	6000	90	0.0212
600	50	0.5073	6000	95	0.0167
600	60	0.3986	10000	0	0.0478
600	70	0.2775	10000	20	0.0454
600	80	0.1537	10000	30	0.0421
600	85	0.0963	10000	40	0.0377
600	90	0.0503	10000	50	0.0326
600	95	0.0220	10000	60	0.0270
1000	0	0.5991	10000	70	0.0213
1000	20	0.5683	10000	80	0.0160
1000	30	0.5266	10000	85	0.0135
1000	40	0.4690	10000	90	0.0113
1000	50	0.3970	10000	95	0.0092
1000	60	0.3125			

Table 31. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\lambda = 30°$, $\phi_c = 30°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.1799	1000	70	0.2188
100	20	1.1112	1000	80	0.1270
100	30	1.0253	1000	85	0.0862
100	40	0.9084	1000	90	0.0529
100	50	0.7638	1000	95	0.0293
100	60	0.5960	3000	0	0.2451
100	70	0.4101	3000	20	0.2327
100	80	0.2105	3000	30	0.2158
100	85	0.1090	3000	40	0.1923
100	90	0.0204	3000	50	0.1632
100	95	0.0013	3000	60	0.1305
300	0	0.9673	3000	70	0.0966
300	20	0.9129	3000	80	0.0648
300	30	0.8434	3000	85	0.0507
300	40	0.7484	3000	90	0.0383
300	50	0.6305	3000	95	0.0279
300	60	0.4936	6000	0	0.1034
300	70	0.3407	6000	20	0.0982
300	80	0.1786	6000	30	0.0910
300	85	0.1006	6000	40	0.0812
300	90	0.0382	6000	50	0.0696
300	95	0.0099	6000	60	0.0567
600	0	0.7695	6000	70	0.0437
600	20	0.7280	6000	80	0.0315
600	30	0.6736	6000	85	0.0260
600	40	0.5987	6000	90	0.0210
600	50	0.5056	6000	95	0.0166
600	60	0.3968	10000	0	0.0478
600	70	0.2756	10000	20	0.0453
600	80	0.1519	10000	30	0.0420
600	85	0.0948	10000	40	0.0377
600	90	0.0493	10000	50	0.0325
600	95	0.0215	10000	60	0.0269
1000	0	0.5989	10000	70	0.0213
1000	20	0.5675	10000	80	0.0159
1000	30	0.5255	10000	85	0.0135
1000	40	0.4676	10000	90	0.0112
1000	50	0.3955	10000	95	0.0092
1000	60	0.3108			

Table 32. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 30°$, $\phi_c = 60°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.1799	1000	70	0.2141
100	20	1.1101	1000	80	0.1229
100	30	1.0239	1000	85	0.0828
100	40	0.9065	1000	90	0.0503
100	50	0.7615	1000	95	0.0277
100	60	0.5934	3000	0	0.2450
100	70	0.4073	3000	20	0.2318
100	80	0.2076	3000	30	0.2145
100	85	0.1062	3000	40	0.1907
100	90	0.0189	3000	50	0.1614
100	95	0.0012	3000	60	0.1286
300	0	0.9673	3000	70	0.0947
300	20	0.9112	3000	80	0.0631
300	30	0.8410	3000	85	0.0492
300	40	0.7452	3000	90	0.0371
300	50	0.6268	3000	95	0.0270
300	60	0.4894	6000	0	0.1034
300	70	0.3362	6000	20	0.0978
300	80	0.1741	6000	30	0.0905
300	85	0.0966	6000	40	0.0807
300	90	0.0358	6000	50	0.0689
300	95	0.0091	6000	60	0.0561
600	0	0.7687	6000	70	0.0431
600	20	0.7255	6000	80	0.0310
600	30	0.6703	6000	85	0.0255
600	40	0.5947	6000	90	0.0206
600	50	0.5011	6000	95	0.0162
600	60	0.3918	10000	0	0.0478
600	70	0.2704	10000	20	0.0452
600	80	0.1471	10000	30	0.0419
600	85	0.0908	10000	40	0.0374
600	90	0.0466	10000	50	0.0323
600	95	0.0201	10000	60	0.0267
1000	0	0.5984	10000	70	0.0210
1000	20	0.5653	10000	80	0.0157
1000	30	0.5226	10000	85	0.0133
1000	40	0.4640	10000	90	0.0110
1000	50	0.3914	10000	95	0.0090
1000	60	0.3063			

CONVAIR ASTRONAUTICS

Table 33. GEOMETRIC FACTOR FOR ALBEDO TO A **HEMISPHERE**

$\delta = 30°$, $\phi_c = 90°$

| Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.1799	1000	70	0.2077
100	20	1.1088	1000	80	0.1172
100	30	1.0218	1000	85	0.0780
100	40	0.9039	1000	90	0.0468
100	50	0.7584	1000	95	0.0255
100	60	0.5899	3000	0	0.2448
100	70	0.4035	3000	20	0.2306
100	80	0.2037	3000	30	0.2128
100	85	0.1024	3000	40	0.1885
100	90	0.0169	3000	50	0.1589
100	95	0.0010	3000	60	0.1259
300	0	0.9673	3000	70	0.0921
300	20	0.9090	3000	80	0.0609
300	30	0.8377	3000	85	0.0473
300	40	0.7410	3000	90	0.0355
300	50	0.6218	3000	95	0.0257
300	60	0.4836	6000	0	0.1033
300	70	0.3300	6000	20	0.0974
300	80	0.1679	6000	30	0.0899
300	85	0.0912	6000	40	0.0799
300	90	0.0325	6000	50	0.0680
300	95	0.0080	6000	60	0.0551
600	0	0.7678	6000	70	0.0422
600	20	0.7221	6000	80	0.0302
600	30	0.6658	6000	85	0.0248
600	40	0.5893	6000	90	0.0200
600	50	0.4949	6000	95	0.0157
600	60	0.3851	10000	0	0.0478
600	70	0.2634	10000	20	0.0450
600	80	0.1406	10000	30	0.0416
600	85	0.0853	10000	40	0.0372
600	90	0.0429	10000	50	0.0319
600	95	0.0181	10000	60	0.0263
1000	0	0.5977	10000	70	0.0207
1000	20	0.5624	10000	80	0.0154
1000	30	0.5186	10000	85	0.0130
1000	40	0.4592	10000	90	0.0108
1000	50	0.3857	10000	95	0.0088
1000	60	0.3001			

Table 34. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 30°$, $\phi_c = 120°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.1799	1000	70	0.2014
100	20	1.1074	1000	80	0.1116
100	30	1.0198	1000	85	0.0733
100	40	0.9013	1000	90	0.0433
100	50	0.7553	1000	95	0.0232
100	60	0.5864	3000	0	0.2447
100	70	0.3997	3000	20	0.2293
100	80	0.1998	3000	30	0.2110
100	85	0.0986	3000	40	0.1863
100	90	0.0149	3000	50	0.1564
100	95	0.0008	3000	60	0.1232
300	0	0.9673	3000	70	0.0895
300	20	0.9067	3000	80	0.0586
300	30	0.8344	3000	85	0.0453
300	40	0.7367	3000	90	0.0338
300	50	0.6167	3000	95	0.0244
300	60	0.4779	6000	0	0.1033
300	70	0.3239	6000	20	0.0969
300	80	0.1617	6000	30	0.0893
300	85	0.0857	6000	40	0.0791
300	90	0.0292	6000	50	0.0671
300	95	0.0069	6000	60	0.0542
600	0	0.7669	6000	70	0.0413
600	20	0.7188	6000	80	0.0294
600	30	0.6614	6000	85	0.0241
600	40	0.5840	6000	90	0.0194
600	50	0.4888	6000	95	0.0152
600	60	0.3784	10000	0	0.0477
600	70	0.2563	10000	20	0.0449
600	80	0.1340	10000	30	0.0414
600	85	0.0798	10000	40	0.0369
600	90	0.0392	10000	50	0.0316
600	95	0.0161	10000	60	0.0260
1000	0	0.5971	10000	70	0.0204
1000	20	0.5595	10000	80	0.0152
1000	30	0.5147	10000	85	0.0128
1000	40	0.4543	10000	90	0.0106
1000	50	0.3801	10000	95	0.0086
1000	60	0.2939			

Table 35. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 30°$, $\phi_c = 150°$

Altitude n. m.	θ_S degrees	F	Altitude n. m.	θ_S degrees	F
100	0	1.1799	1000	70	0.1967
100	20	1.1064	1000	80	0.1074
100	30	1.0183	1000	85	0.0698
100	40	0.8994	1000	90	0.0408
100	50	0.7531	1000	95	0.0216
100	60	0.5839	3000	0	0.2446
100	70	0.3969	3000	20	0.2284
100	80	0.1969	3000	30	0.2098
100	85	0.0958	3000	40	0.1847
100	90	0.0134	3000	50	0.1545
100	95	0.0007	3000	60	0.1212
300	0	0.9673	3000	70	0.0876
300	20	0.9050	3000	80	0.0570
300	30	0.8320	3000	85	0.0439
300	40	0.7336	3000	90	0.0326
300	50	0.6130	3000	95	0.0234
300	60	0.4737	6000	0	0.1033
300	70	0.3193	6000	20	0.0966
300	80	0.1572	6000	30	0.0888
300	85	0.0818	6000	40	0.0786
300	90	0.0268	6000	50	0.0665
300	95	0.0061	6000	60	0.0535
600	0	0.7663	6000	70	0.0407
600	20	0.7164	6000	80	0.0289
600	30	0.6582	6000	85	0.0236
600	40	0.5801	6000	90	0.0189
600	50	0.4843	6000	95	0.0148
600	60	0.3735	10000	0	0.0477
600	70	0.2511	10000	20	0.0447
600	80	0.1292	10000	30	0.0412
600	85	0.0758	10000	40	0.0367
600	90	0.0365	10000	50	0.0314
600	95	0.0147	10000	60	0.0258
1000	0	0.5967	10000	70	0.0202
1000	20	0.5574	10000	80	0.0150
1000	30	0.5119	10000	85	0.0126
1000	40	0.4508	10000	90	0.0104
1000	50	0.3761	10000	95	0.0085
1000	60	0.2894			

Table 36. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$$\gamma = 30°, \qquad \phi_c = 180°$$

Altitude n. m.	θ_S degrees	F	Altitude n. m.	θ_S degrees	F
100	0	1.1799	1000	70	0.1950
100	20	1.1060	1000	80	0.1059
100	30	1.0178	1000	85	0.0686
100	40	0.8987	1000	90	0.0399
100	50	0.7522	1000	95	0.0210
100	60	0.5829	3000	0	0.2445
100	70	0.3959	3000	20	0.2281
100	80	0.1958	3000	30	0.2093
100	85	0.0948	3000	40	0.1842
100	90	0.0129	3000	50	0.1539
100	95	0.0006	3000	60	0.1205
300	0	0.9673	3000	70	0.0869
300	20	0.9044	3000	80	0.0564
300	30	0.8311	3000	85	0.0433
300	40	0.7325	3000	90	0.0322
300	50	0.6116	3000	95	0.0231
300	60	0.4722	6000	0	0.1033
300	70	0.3177	6000	20	0.0965
300	80	0.1556	6000	30	0.0887
300	85	0.0803	6000	40	0.0783
300	90	0.0259	6000	50	0.0663
300	95	0.0058	6000	60	0.0533
600	0	0.7661	6000	70	0.0404
600	20	0.7156	6000	80	0.0287
600	30	0.6572	6000	85	0.0234
600	40	0.5787	6000	90	0.0188
600	50	0.4827	6000	95	0.0147
600	60	0.3717	10000	0	0.0477
600	70	0.2493	10000	20	0.0447
600	80	0.1275	10000	30	0.0412
600	85	0.0744	10000	40	0.0366
600	90	0.0355	10000	50	0.0313
600	95	0.0142	10000	60	0.0257
1000	0	0.5966	10000	70	0.0201
1000	20	0.5567	10000	80	0.0149
1000	30	0.5109	10000	85	0.0125
1000	40	0.4496	10000	90	0.0104
1000	50	0.3746	10000	95	0.0084
1000	60	0.2877			

Table 37. GEOMETRIC FACTOR FOR ALBEDO IN A HEMISPHERE

$\delta = 60°$, $\phi_c = 0°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.0055	1000	70	0.1935
100	20	0.9496	1000	80	0.1165
100	30	0.8778	1000	85	0.0811
100	40	0.7792	1000	90	0.0511
100	50	0.6570	1000	95	0.0290
100	60	0.5149	3000	0	0.1993
100	70	0.3570	3000	20	0.1915
100	80	0.1872	3000	30	0.1787
100	85	0.1005	3000	40	0.1605
100	90	0.0219	3000	50	0.1377
100	95	0.0015	3000	60	0.1115
300	0	0.8132	3000	70	0.0839
300	20	0.7720	3000	80	0.0573
300	30	0.7157	3000	85	0.0453
300	40	0.6376	3000	90	0.0346
300	50	0.5402	3000	95	0.0254
300	60	0.4264	6000	0	0.0836
300	70	0.2988	6000	20	0.0801
300	80	0.1625	6000	30	0.0747
300	85	0.0958	6000	40	0.0672
300	90	0.0393	6000	50	0.0580
300	95	0.0109	6000	60	0.0477
600	0	0.6416	6000	70	0.0371
600	20	0.6120	6000	80	0.0271
600	30	0.5690	6000	85	0.0225
600	40	0.5086	6000	90	0.0182
600	50	0.4328	6000	95	0.0145
600	60	0.3435	10000	0	0.0385
600	70	0.2435	10000	20	0.0368
600	80	0.1397	10000	30	0.0343
600	85	0.0903	10000	40	0.0309
600	90	0.0490	10000	50	0.0268
600	95	0.0216	10000	60	0.0223
1000	0	0.4950	10000	70	0.0178
1000	20	0.4738	10000	80	0.0134
1000	30	0.4413	10000	85	0.0114
1000	40	0.3954	10000	90	0.0095
1000	50	0.3375	10000	95	0.0078
1000	60	0.2689			

Table 38. GEOMETRIC FACTOR FOR ALBEDO FOR A HEMISPHERE

$\delta = 60°,$ $\phi_c = 30°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.0055	1000	70	0.1905
100	20	0.9490	1000	80	0.1138
100	30	0.8768	1000	85	0.9789
100	40	0.7780	1000	90	0.0494
100	50	0.6556	1000	95	0.0280
100	60	0.5132	3000	0	0.1993
100	70	0.3553	3000	20	0.1909
100	80	0.1854	3000	30	0.1779
100	85	0.0987	3000	40	0.1595
100	90	0.0209	3000	50	0.1365
100	95	0.0015	3000	60	0.1103
300	0	0.8132	3000	70	0.0827
300	20	0.7709	3000	80	0.0562
300	30	0.7141	3000	85	0.0443
300	40	0.6357	3000	90	0.0338
300	50	0.5379	3000	95	0.0248
300	60	0.4237	6000	0	0.0835
300	70	0.2960	6000	20	0.0799
300	80	0.1597	6000	30	0.0744
300	85	0.0933	6000	40	0.0668
300	90	0.0378	6000	50	0.0576
300	95	0.0104	6000	60	0.0473
600	0	0.6410	6000	70	0.0367
600	20	0.6103	6000	80	0.0267
600	30	0.5667	6000	85	0.0221
600	40	0.5060	6000	90	0.0179
600	50	0.4298	6000	95	0.0142
600	60	0.3403	10000	0	0.0385
600	70	0.2402	10000	20	0.0367
600	80	0.1387	10000	30	0.0342
600	85	0.0878	10000	40	0.0308
600	90	0.0473	10000	50	0.0267
600	95	0.0213	10000	60	0.0222
1000	0	0.4946	10000	70	0.0176
1000	20	0.4723	10000	80	0.0133
1000	30	0.4394	10000	85	0.0113
1000	40	0.3931	10000	90	0.0094
1000	50	0.3348	10000	95	0.0077
1000	60	0.2660			

Table 39. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 60°$, $\phi_c = 60°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.0055	1000	70	0.1824
100	20	0.9472	1000	80	0.1067
100	30	0.8743	1000	85	0.0728
100	40	0.7747	1000	90	0.0450
100	50	0.6517	1000	95	0.0252
100	60	0.5088	3000	0	0.1990
100	70	0.3505	3000	20	0.1893
100	80	0.1804	3000	30	0.1757
100	85	0.0939	3000	40	0.1567
100	90	0.0184	3000	50	0.1333
100	95	0.0012	3000	60	0.1068
300	0	0.8132	3000	70	0.0793
300	20	0.7680	3000	80	0.0534
300	30	0.7099	3000	85	0.0419
300	40	0.6303	3000	90	0.0317
300	50	0.5315	3000	95	0.0232
300	60	0.4165	6000	0	0.0835
300	70	0.2881	6000	20	0.0794
300	80	0.1519	6000	30	0.0756
300	85	0.0864	6000	40	0.0658
300	90	0.0336	6000	50	0.0564
300	95	0.0090	6000	60	0.0461
600	0	0.6397	6000	70	0.0356
600	20	0.6059	6000	80	0.0257
600	30	0.5610	6000	85	0.0213
600	40	0.4991	6000	90	0.0172
600	50	0.4220	6000	95	0.0136
600	60	0.3317	10000	0	0.0385
600	70	0.2312	10000	20	0.0365
600	80	0.1284	10000	30	0.0339
600	85	0.0808	10000	40	0.0304
600	90	0.0426	10000	50	0.0263
600	95	0.0188	10000	60	0.0218
1000	0	0.4937	10000	70	0.0172
1000	20	0.4685	10000	80	0.0129
1000	30	0.4343	10000	85	0.0109
1000	40	0.3869	10000	90	0.0091
1000	50	0.3277	10000	95	0.0274
1000	60	0.2581			

Table 41. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 60°$, $\phi_c = 120°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.0055	1000	70	0.1603
100	20	0.9425	1000	80	0.0871
100	30	0.8673	1000	85	0.0564
100	40	0.7657	1000	90	0.0329
100	50	0.6409	1000	95	0.0174
100	60	0.4967	3000	0	0.1984
100	70	0.3373	3000	20	0.1850
100	80	0.1667	3000	30	0.1697
100	85	0.0808	3000	40	0.1492
100	90	0.0114	3000	50	0.1246
100	95	0.0006	3000	60	0.0975
300	0	0.8132	3000	70	0.0703
300	20	0.7602	3000	80	0.0456
300	30	0.6985	3000	85	0.0351
300	40	0.6155	3000	90	0.0260
300	50	0.5139	3000	95	0.0187
300	60	0.3966	6000	0	0.0833
300	70	0.2667	6000	20	0.0778
300	80	0.1305	6000	30	0.0715
300	85	0.0675	6000	40	0.0631
300	90	0.0221	6000	50	0.0534
300	95	0.0051	6000	60	0.0429
600	0	0.6364	6000	70	0.0325
600	20	0.5943	6000	80	0.0231
600	30	0.5457	6000	85	0.0189
600	40	0.4805	6000	90	0.0151
600	50	0.4007	6000	95	0.0118
600	60	0.3084	10000	0	0.0384
600	70	0.2067	10000	20	0.0360
600	80	0.1057	10000	30	0.0331
600	85	0.0618	10000	40	0.0294
600	90	0.0297	10000	50	0.0252
600	95	0.0120	10000	60	0.0206
1000	0	0.4915	10000	70	0.0161
1000	20	0.4584	10000	80	0.0120
1000	30	0.4206	10000	85	0.0101
1000	40	0.3701	10000	90	0.0083
1000	50	0.3082	10000	95	0.0068
1000	60	0.2367			

Table 40. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\delta = 60°$, $\phi_c = 90°$

Altitude n. m.	θ_S degrees	F	Altitude n. m.	θ_S degrees	F
100	0	1.0055	1000	70	0.1713
100	20	0.9448	1000	80	0.0969
100	30	0.8708	1000	85	0.0646
100	40	0.7702	1000	90	0.0390
100	50	0.6463	1000	95	0.0213
100	60	0.5027	3000	0	0.1987
100	70	0.3439	3000	20	0.1871
100	80	0.1736	3000	30	0.1727
100	85	0.0873	3000	40	0.1530
100	90	0.0149	3000	50	0.1290
100	95	0.0009	3000	60	0.1022
300	0	0.8132	3000	70	0.0748
300	20	0.7641	3000	80	0.0495
300	30	0.7042	3000	85	0.0385
300	40	0.6229	3000	90	0.0289
300	50	0.5227	3000	95	0.0209
300	60	0.4066	6000	0	0.0834
300	70	0.2774	6000	20	0.0786
300	80	0.1412	6000	30	0.0726
300	85	0.0770	6000	40	0.0645
300	90	0.0279	6000	50	0.0549
300	95	0.0070	6000	60	0.0445
600	0	0.6380	6000	70	0.0341
600	20	0.6001	6000	80	0.0244
600	30	0.5533	6000	85	0.0201
600	40	0.4897	6000	90	0.0161
600	50	0.4113	6000	95	0.0127
600	60	0.3201	10000	0	0.0384
600	70	0.2190	10000	20	0.0363
600	80	0.1171	10000	30	0.0335
600	85	0.0713	10000	40	0.0299
600	90	0.0361	10000	50	0.0257
600	95	0.0154	10000	60	0.0212
1000	0	0.4926	10000	70	0.0167
1000	20	0.4635	10000	80	0.0124
1000	30	0.4274	10000	85	0.0105
1000	40	0.3784	10000	90	0.0087
1000	50	0.3179	10000	95	0.0081
1000	60	0.2474			

Table 42. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\lambda = 60°$ $\phi_c = 150°$

Altitude n. m.	θ_S degrees	F	Altitude n. m.	θ_S degrees	F
100	0	1.0055	1000	70	0.1522
100	20	0.9407	1000	80	0.0799
100	30	0.8647	1000	85	0.0504
100	40	0.7624	1000	90	0.0285
100	50	0.6370	1000	95	0.0146
100	60	0.4922	3000	0	0.1982
100	70	0.3325	3000	20	0.1834
100	80	0.1617	3000	30	0.1675
100	85	0.0759	3000	40	0.1465
100	90	0.0088	3000	50	0.1214
100	95	0.0003	3000	60	0.0941
300	0	0.8132	3000	70	0.0669
300	20	0.7573	3000	80	0.0427
300	30	0.6943	3000	85	0.0326
300	40	0.6101	3000	90	0.0240
300	50	0.5075	3000	95	0.0170
300	60	0.3894	6000	0	0.0833
300	70	0.2589	6000	20	0.0773
300	80	0.1227	6000	30	0.0707
300	85	0.0606	6000	40	0.0621
300	90	0.0179	6000	50	0.0522
300	95	0.0037	6000	60	0.0417
600	0	0.6354	6000	70	0.0314
600	20	0.5902	6000	80	0.0221
600	30	0.5402	6000	85	0.0180
600	40	0.4738	6000	90	0.0143
600	50	0.3930	6000	95	0.0112
600	60	0.2999	10000	0	0.0384
600	70	0.1978	10000	20	0.0358
600	80	0.0974	10000	30	0.0328
600	85	0.0549	10000	40	0.0291
600	90	0.0250	10000	50	0.0248
600	95	0.0095	10000	60	0.0202
1000	0	0.4908	10000	70	0.0157
1000	20	0.4548	10000	80	0.0116
1000	30	0.4157	10000	85	0.0097
1000	40	0.3640	10000	90	0.0080
1000	50	0.3012	10000	95	0.0065
1000	60	0.2288			

Table 43. GEOMETRIC FACTOR FOR ALBEDO TO A **HEMISPHERE**

$\delta = 60°$ $\phi_c = 180°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	1.0055	1000	70	0.1492
100	20	0.9401	1000	80	0.0773
100	30	0.8638	1000	85	0.0482
100	40	0.7612	1000	90	0.0269
100	50	0.6356	1000	95	0.0136
100	60	0.4906	3000	0	0.1982
100	70	0.3307	3000	20	0.1829
100	80	0.1599	3000	30	0.1667
100	85	0.0742	3000	40	0.1455
100	90	0.0079	3000	50	0.1203
100	95	0.0003	3000	60	0.0929
300	0	0.8132	3000	70	0.0657
300	20	0.7563	3000	80	0.0417
300	30	0.6928	3000	85	0.0317
300	40	0.6082	3000	90	0.0232
300	50	0.5051	3000	95	0.0164
300	60	0.3867	6000	0	0.0833
300	70	0.2560	6000	20	0.0771
300	80	0.1199	6000	30	0.0704
300	85	0.0581	6000	40	0.0618
300	90	0.0164	6000	50	0.0518
300	95	0.0032	6000	60	0.0413
600	0	0.6352	6000	70	0.0310
600	20	0.5888	6000	80	0.0217
600	30	0.5383	6000	85	0.0177
600	40	0.4714	6000	90	0.0140
600	50	0.3902	6000	95	0.0109
600	60	0.2969	10000	0	0.0384
600	70	0.1946	10000	20	0.0357
600	80	0.0944	10000	30	0.0327
600	85	0.0523	10000	40	0.0289
600	90	0.0233	10000	50	0.0246
600	95	0.0086	10000	60	0.0201
1000	0	0.4907	10000	70	0.0156
1000	20	0.4536	10000	80	0.0115
1000	30	0.4140	10000	85	0.0096
1000	40	0.3618	10000	90	0.0079
1000	50	0.2986	10000	95	0.0064
1000	60	0.2260			

Table 44. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 90°,$ $\phi_c = 0°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.7672	1000	70	0.1471
100	20	0.7265	1000	80	0.0917
100	30	0.6725	1000	85	0.0653
100	40	0.5981	1000	90	0.0422
100	50	0.5055	1000	95	0.0246
100	60	0.3976	3000	0	0.1364
100	70	0.2776	3000	20	0.1328
100	80	0.1482	3000	30	0.1249
100	85	0.0819	3000	40	0.1132
100	90	0.0201	3000	50	0.0982
100	95	0.0015	3000	60	0.0808
300	0	0.6026	3000	70	0.0617
300	20	0.5753	3000	80	0.0429
300	30	0.5351	3000	85	0.0343
300	40	0.4786	3000	90	0.0264
300	50	0.4076	3000	95	0.0197
300	60	0.3242	6000	0	0.0563
300	70	0.2303	6000	20	0.0547
300	80	0.1293	6000	30	0.0514
300	85	0.0793	6000	40	0.0466
300	90	0.0348	6000	50	0.0405
300	95	0.0101	6000	60	0.0337
600	0	0.4651	6000	70	0.0265
600	20	0.4474	6000	80	0.0195
600	30	0.4178	6000	85	0.0163
600	40	0.3756	6000	90	0.0133
600	50	0.3220	6000	95	0.0106
600	60	0.2584	10000	0	0.0258
600	70	0.1867	10000	20	0.0249
600	80	0.1112	10000	30	0.0234
600	85	0.0741	10000	40	0.0212
600	90	0.0418	10000	50	0.0185
600	95	0.0196	10000	60	0.0155
1000	0	0.3519	10000	70	0.0124
1000	20	0.3404	10000	80	0.0094
1000	30	0.3189	10000	85	0.0080
1000	40	0.2878	10000	90	0.0067
1000	50	0.2479	10000	95	0.0055
1000	60	0.2002			

CONVAIR ASTRONAUTICS

Table 45. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 90°$, $\phi_c = 30°$

Altitude n. m.	θ_S degrees	F	Altitude n. m.	θ_S degrees	F
100	0	0.7672	1000	70	0.1437
100	20	0.7257	1000	80	0.0886
100	30	0.6714	1000	85	0.0628
100	40	0.5967	1000	90	0.0403
100	50	0.5039	1000	95	0.0234
100	60	0.3957	3000	0	0.1383
100	70	0.2755	3000	20	0.1322
100	80	0.1461	3000	30	0.1240
100	85	0.0799	3000	40	0.1120
100	90	0.0191	3000	50	0.0968
100	95	0.0014	3000	60	0.0792
300	0	0.6026	3000	70	0.0602
300	20	0.5741	3000	80	0.0417
300	30	0.5333	3000	85	0.0332
300	40	0.4763	3000	90	0.0256
300	50	0.4049	3000	95	0.0189
300	60	0.3211	6000	0	0.0563
300	70	0.2270	6000	20	0.0545
300	80	0.1260	6000	30	0.0510
300	85	0.0764	6000	40	0.0461
300	90	0.0330	6000	50	0.0400
300	95	0.0095	6000	60	0.0332
600	0	0.4644	6000	70	0.0260
600	20	0.4453	6000	80	0.0191
600	30	0.4153	6000	85	0.0159
600	40	0.3726	6000	90	0.0130
600	50	0.3186	6000	95	0.0103
600	60	0.2547	10000	0	0.0258
600	70	0.1829	10000	20	0.0248
600	80	0.1076	10000	30	0.0232
600	85	0.0712	10000	40	0.0210
600	90	0.0398	10000	50	0.0183
600	95	0.0185	10000	60	0.0153
1000	0	0.3514	10000	70	0.0123
1000	20	0.3387	10000	80	0.0093
1000	30	0.3167	10000	85	0.0079
1000	40	0.2851	10000	90	0.0066
1000	50	0.2448	10000	95	0.0054
1000	60	0.1969			

Table 46. GEOMETRIC FACTOR FOR ALBEDO TO A **HEMISPHERE**

$$\gamma = 90°, \qquad \phi_c = 60°$$

Altitude n. m.	θ_S degrees	F	Altitude n. m.	θ_S degrees	F
100	0	0.7672	1000	70	0.1343
100	20	0.7237	1000	80	0.0803
100	30	0.6685	1000	85	0.0558
100	40	0.5929	1000	90	0.0352
100	50	0.4993	1000	95	0.0201
100	60	0.3906	3000	0	0.1360
100	70	0.2700	3000	20	0.1303
100	80	0.1403	3000	30	0.1214
100	85	0.0744	3000	40	0.1088
100	90	0.0161	3000	50	0.0931
100	95	0.0012	3000	60	0.0752
300	0	0.6026	3000	70	0.0564
300	20	0.5708	3000	80	0.0384
300	30	0.5285	3000	85	0.0303
300	40	0.4701	3000	90	0.0232
300	50	0.3975	3000	95	0.0170
300	60	0.3127	6000	0	0.0562
300	70	0.2179	6000	20	0.0538
300	80	0.1170	6000	30	0.0501
300	85	0.0684	6000	40	0.0450
300	90	0.0281	6000	50	0.0387
300	95	0.0079	6000	60	0.0318
600	0	0.4628	6000	70	0.0247
600	20	0.4403	6000	80	0.0180
600	30	0.4086	6000	85	0.0149
600	40	0.3646	6000	90	0.0121
600	50	0.3095	6000	95	0.0096
600	60	0.2448	10000	0	0.0258
600	70	0.1725	10000	20	0.0246
600	80	0.0980	10000	30	0.0229
600	85	0.0631	10000	40	0.0206
600	90	0.0343	10000	50	0.0179
600	95	0.0156	10000	60	0.0149
1000	0	0.3504	10000	70	0.0118
1000	20	0.3343	10000	80	0.0089
1000	30	0.3109	10000	85	0.0075
1000	40	0.2779	10000	90	0.0063
1000	50	0.2366	10000	95	0.0051
1000	60	0.1878			

Table 47. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 90°$, $\phi_c = 90°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.7672	1000	70	0.1216
100	20	0.7209	1000	80	0.0690
100	30	0.6644	1000	85	0.0463
100	40	0.5877	1000	90	0.0282
100	50	0.4931	1000	95	0.0156
100	60	0.3836	3000	0	0.1357
100	70	0.2624	3000	20	0.1278
100	80	0.1324	3000	30	0.1180
100	85	0.0668	3000	40	0.1045
100	90	0.0121	3000	50	0.0881
100	95	0.0008	3000	60	0.0698
300	0	0.6026	3000	70	0.0512
300	20	0.5662	3000	80	0.0339
300	30	0.5219	3000	85	0.0264
300	40	0.4616	3000	90	0.0199
300	50	0.3873	3000	95	0.0144
300	60	0.3013	6000	0	0.0561
300	70	0.2056	6000	20	0.0529
300	80	0.1047	6000	30	0.0489
300	85	0.0575	6000	40	0.0434
300	90	0.0215	6000	50	0.0370
300	95	0.0057	6000	60	0.0300
600	0	0.4609	6000	70	0.0230
600	20	0.4335	6000	80	0.0165
600	30	0.3997	6000	85	0.0135
600	40	0.3538	6000	90	0.0109
600	50	0.2972	6000	95	0.0086
600	60	0.2313	10000	0	0.0257
600	70	0.1584	10000	20	0.0243
600	80	0.0850	10000	30	0.0224
600	85	0.0522	10000	40	0.0200
600	90	0.0269	10000	50	0.0172
600	95	0.0117	10000	60	0.0142
1000	0	0.3491	10000	70	0.0112
1000	20	0.3285	10000	80	0.0083
1000	30	0.3029	10000	85	0.0070
1000	40	0.2682	10000	90	0.0058
1000	50	0.2253	10000	95	0.0047
1000	60	0.1754			

Table 48. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 90°,$ $\phi_c = 120°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.7672	1000	70	0.1088
100	20	0.7182	1000	80	0.0577
100	30	0.6604	1000	85	0.0369
100	40	0.5825	1000	90	0.0212
100	50	0.4869	1000	95	0.0111
100	60	0.3766	3000	0	0.1354
100	70	0.2548	3000	20	0.1253
100	80	0.1245	3000	30	0.1145
100	85	0.0592	3000	40	0.1002
100	90	0.0080	3000	50	0.0831
100	95	0.0004	3000	60	0.0645
300	0	0.6026	3000	70	0.0459
300	20	0.5617	3000	80	0.0294
300	30	0.5152	3000	85	0.0225
300	40	0.4531	3000	90	0.0166
300	50	0.3772	3000	95	0.0118
300	60	0.2898	6000	0	0.0561
300	70	0.1932	6000	20	0.0520
300	80	0.0924	6000	30	0.0476
300	85	0.0466	6000	40	0.0419
300	90	0.0149	6000	50	0.0352
300	95	0.0035	6000	60	0.0281
600	0	0.4591	6000	70	0.0212
600	20	0.4269	6000	80	0.0149
600	30	0.3909	6000	85	0.0121
600	40	0.3431	6000	90	0.0097
600	50	0.2849	6000	95	0.0076
600	60	0.2178	10000	0	0.0257
600	70	0.1443	10000	20	0.00239
600	80	0.0719	10000	30	0.0220
600	85	0.0412	10000	40	0.0198
600	90	0.0195	10000	50	0.0166
600	95	0.0078	10000	60	0.0135
1000	0	0.3479	10000	70	0.0105
1000	20	0.3227	10000	80	0.0078
1000	30	0.2951	10000	85	0.0065
1000	40	0.2585	10000	90	0.0054
1000	50	0.2141	10000	95	0.0044
1000	60	0.1630			

Table 49. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\lambda = 90°$, $\phi_c = 150°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.7672	1000	70	0.0995
100	20	0.7162	1000	80	0.0495
100	30	0.6574	1000	85	0.0299
100	40	0.5787	1000	90	0.0161
100	50	0.4824	1000	95	0.0079
100	60	0.3714	3000	0	0.1352
100	70	0.2492	3000	20	0.1235
100	80	0.1188	3000	30	0.1120
100	85	0.0536	3000	40	0.0970
100	90	0.0050	3000	50	0.0794
100	95	0.0001	3000	60	0.0605
300	0	0.6026	3000	70	0.0421
300	20	0.5584	3000	80	0.0261
300	30	0.5104	3000	85	0.0196
300	40	0.4469	5000	90	0.0142
300	50	0.3698	5000	95	0.0099
300	60	0.2814	6000	0	0.0560
300	70	0.1842	6000	20	0.0514
300	80	0.0834	6000	30	0.0467
300	85	0.0387	6000	40	0.0407
300	90	0.0101	6000	50	0.0339
300	95	0.0019	6000	60	0.0268
600	0	0.4579	6000	70	0.0199
600	20	0.4221	6000	80	0.0138
600	30	0.3846	6000	85	0.0111
600	40	0.3354	6000	90	0.0088
600	50	0.2760	6000	95	0.0068
600	60	0.2080	10000	0	0.0257
600	70	0.1339	10000	20	0.0237
600	80	0.0623	10000	30	0.0216
600	85	0.0332	10000	40	0.0190
600	90	0.0140	10000	50	0.0161
600	95	0.0050	10000	60	0.0131
1000	0	0.3471	10000	70	0.0101
1000	20	0.3185	10000	80	0.0074
1000	30	0.2894	10000	85	0.0061
1000	40	0.2515	10000	90	0.0050
1000	50	0.2060	10000	95	0.0041
1000	60	0.1540			

Table 50. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 90°$, $\phi_c = 180°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.7672	1000	70	0.0961
100	20	0.7154	1000	80	0.0464
100	30	0.6563	1000	85	0.0274
100	40	0.5773	1000	90	0.0143
100	50	0.4807	1000	95	0.0067
100	60	0.3698	3000	0	0.1351
100	70	0.2472	3000	20	0.1229
100	80	0.1167	3000	30	0.1111
100	85	0.0516	3000	40	0.0958
100	90	0.0040	3000	50	0.0781
100	95	0.0001	3000	60	0.0591
300	0	0.6026	3000	70	0.0407
300	20	0.5572	3000	80	0.0249
300	30	0.5086	3000	85	0.0186
300	40	0.4446	3000	90	0.0133
300	50	0.3670	3000	95	0.0092
300	60	0.1899	6000	0	0.0560
300	70	0.2784	6000	20	0.0512
300	80	0.0801	6000	30	0.0464
300	85	0.0558	6000	40	0.0403
300	90	0.0083	6000	50	0.0334
300	95	0.0013	6000	60	0.0263
600	0	0.4576	6000	70	0.0194
600	20	0.4205	6000	80	0.0134
600	30	0.3864	6000	85	0.0108
600	40	0.3327	6000	90	0.0085
600	50	0.2728	6000	95	0.0065
600	60	0.2045	10000	0	0.0257
600	70	0.1302	10000	20	0.0236
600	80	0.0588	10000	30	0.0215
600	85	0.0303	10000	40	0.0189
600	90	0.0120	10000	50	0.0159
600	95	0.0039	10000	60	0.0129
1000	0	0.3469	10000	70	0.0099
1000	20	0.3171	10000	80	0.0072
1000	30	0.2874	10000	85	0.0060
1000	40	0.2590	10000	90	0.0049
1000	50	0.2030	10000	95	0.0040
1000	60	0.1507			

Table 51. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\lambda = 120°$ $\qquad$ $\phi_c = 0°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.5289	1000	70	0.0940
100	20	0.5018	1000	80	0.0608
100	30	0.4651	1000	85	0.0445
100	40	0.4142	1000	90	0.0296
100	50	0.3507	1000	95	0.0177
100	60	0.2766	3000	0	0.0734
100	70	0.1940	3000	20	0.0729
100	80	0.1050	3000	30	0.0693
100	85	0.0593	3000	40	0.0636
100	90	0.0163	3000	50	0.0560
100	95	0.0013	3000	60	0.0468
300	0	0.3920	3000	70	0.0366
300	20	0.3762	3000	80	0.0262
300	30	0.3510	3000	85	0.0212
300	40	0.3150	3000	90	0.0166
300	50	0.2695	3000	95	0.0120
300	60	0.2158	6000	0	0.0291
300	70	0.1551	6000	20	0.0288
300	80	0.0896	6000	30	0.0273
300	85	0.0570	6000	40	0.0251
300	90	0.0267	6000	50	0.0221
300	95	0.0082	6000	60	0.0187
600	0	0.2876	6000	70	0.0149
600	20	0.2790	6000	80	0.0112
600	30	0.2619	6000	85	0.0094
600	40	0.2369	6000	90	0.0077
600	50	0.2046	6000	95	0.0062
600	60	0.1660	10000	0	0.0131
600	70	0.1224	10000	20	0.0129
600	80	0.0756	10000	30	0.0122
600	85	0.0521	10000	40	0.0111
600	90	0.0305	10000	50	0.0098
600	95	0.0148	10000	60	0.0083
1000	0	0.2081	10000	70	0.0067
1000	20	0.2038	10000	80	0.0052
1000	30	0.1923	10000	85	0.0044
1000	40	0.1750	10000	90	0.0037
1000	50	0.1523	10000	95	0.0031
1000	60	0.1250			

Table 52. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 120,$ $\phi_c = 30°$

Altitude n. m.	Θ_s degrees	F	Altitude n. m.	Θ_s degrees	F
100	0	0.5289	1000	70	0.0910
100	20	0.5012	1000	80	0.0582
100	30	0.4641	1000	85	0.0423
100	40	0.4130	1000	90	0.0279
100	50	0.3493	1000	95	0.0166
100	60	0.2750	3000	0	0.0733
100	70	0.1923	3000	20	0.0723
100	80	0.1031	3000	30	0.0685
100	85	0.0576	3000	40	0.0626
100	90	0.0153	3000	50	0.0548
100	95	0.0012	3000	60	0.0456
300	0	0.3920	3000	70	0.0354
300	20	0.3752	3000	80	0.0251
300	30	0.3494	3000	85	0.0203
300	40	0.3131	3000	90	0.0158
300	50	0.2872	3000	95	0.0119
300	60	0.2132	6000	0	0.0291
300	70	0.1523	6000	20	0.0286
300	80	0.0867	6000	30	0.0270
300	85	0.0544	6000	40	0.0247
300	90	0.0251	6000	50	0.0217
300	95	0.0077	6000	60	0.0182
600	0	0.2869	6000	70	0.0145
600	20	0.2773	6000	80	0.0108
600	30	0.2597	6000	85	0.0091
600	40	0.2342	6000	90	0.0075
600	50	0.2016	6000	95	0.0060
600	60	0.1628	10000	0	0.0131
600	70	0.1190	10000	20	0.0128
600	80	0.0725	10000	30	0.0120
600	85	0.0495	10000	40	0.0110
600	90	0.0288	10000	50	0.0097
600	95	0.0139	10000	60	0.0082
1000	0	0.2077	10000	70	0.0066
1000	20	0.2024	10000	80	0.0051
1000	30	0.1904	10000	85	0.0043
1000	40	0.1727	10000	90	0.0036
1000	50	0.1497	10000	95	0.0030
1000	60	0.1221			

Table 53. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 120°$, $\phi_c = 60°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.5289	1000	70	0.0829
100	20	0.4994	1000	80	0.0510
100	30	0.4616	1000	85	0.0363
100	40	0.4097	1000	90	0.0235
100	50	0.3453	1000	95	0.0138
100	60	0.2705	3000	0	0.0730
100	70	0.1875	3000	20	0.0707
100	80	0.0981	3000	30	0.0662
100	85	0.0528	3000	40	0.0598
100	90	0.0127	3000	50	0.0516
100	95	0.0010	3000	60	0.0422
300	0	0.3920	3000	70	0.0321
300	20	0.3723	3000	80	0.0223
300	30	0.3452	3000	85	0.0178
300	40	0.3077	3000	90	0.0157
300	50	0.2607	3000	95	0.0102
300	60	0.2059	6000	0	0.0290
300	70	0.1444	6000	20	0.0280
300	80	0.0789	6000	30	0.0263
300	85	0.0475	6000	40	0.0237
300	90	0.0209	6000	50	0.0206
300	95	0.0063	6000	60	0.0171
600	0	0.2856	6000	70	0.0134
600	20	0.2729	6000	80	0.0099
600	30	0.2540	6000	85	0.0082
600	40	0.2273	6000	90	0.0067
600	50	0.1938	6000	95	0.0053
600	60	0.1542	10000	0	0.0131
600	70	0.1101	10000	20	0.0126
600	80	0.0642	10000	30	0.0118
600	85	0.0425	10000	40	0.0106
600	90	0.0241	10000	50	0.0093
600	95	0.0115	10000	60	0.0078
1000	0	0.2068	10000	70	0.0062
1000	20	0.1986	10000	80	0.0047
1000	30	0.1853	10000	85	0.0040
1000	40	0.1665	10000	90	0.0033
1000	50	0.1425	10000	95	0.0027
1000	60	0.1142			

CONVAIR ASTRONAUTICS

Table 54. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 120°$ $\phi_c = 90°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.5289	1000	70	0.0718
100	20	0.4970	1000	80	0.0412
100	30	0.4581	1000	85	0.0281
100	40	0.4052	1000	90	0.0175
100	50	0.3400	1000	95	0.0099
100	60	0.2644	3000	0	0.0727
100	70	0.1809	3000	20	0.0685
100	80	0.0913	3000	30	0.0632
100	85	0.0462	3000	40	0.0560
100	90	0.0092	3000	50	0.0472
100	95	0.0007	3000	60	0.0375
300	0	0.3920	3000	70	0.0275
300	20	0.3684	3000	80	0.0184
300	30	0.3395	3000	85	0.0144
300	40	0.3003	3000	90	0.0109
300	50	0.2520	3000	95	0.0077
300	60	0.1960	6000	0	0.0289
300	70	0.1337	6000	20	0.0273
300	80	0.0682	6000	30	0.0252
300	85	0.0381	6000	40	0.0224
300	90	0.0152	6000	50	0.0191
300	95	0.0043	6000	60	0.0155
600	0	0.2839	6000	70	0.0119
600	20	0.2671	6000	80	0.0085
600	30	0.2463	6000	85	0.0070
600	40	0.2180	6000	90	0.0057
600	50	0.1831	6000	95	0.0045
600	60	0.1426	10000	0	0.0130
600	70	0.0978	10000	20	0.0123
600	80	0.0529	10000	30	0.0114
600	85	0.0330	10000	40	0.0101
600	90	0.0176	10000	50	0.0087
600	95	0.0081	10000	60	0.0072
1000	0	0.2056	10000	70	0.0057
1000	20	0.1935	10000	80	0.0042
1000	30	0.1785	10000	85	0.0036
1000	40	0.1580	10000	90	0.0029
1000	50	0.1328	10000	95	0.0024
1000	60	0.1035			

Table 55. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\lambda = 120°,$ $\phi_c = 120°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.5289	1000	70	0.0608
100	20	0.4946	1000	80	0.0314
100	30	0.4546	1000	85	0.0198
100	40	0.4007	1000	90	0.0114
100	50	0.3346	1000	95	0.0060
100	60	0.2584	3000	0	0.0725
100	70	0.1743	3000	20	0.0664
100	80	0.0845	3000	30	0.0602
100	85	0.0396	3000	40	0.0523
100	90	0.0067	3000	50	0.0429
100	95	0.0004	3000	60	0.0328
300	0	0.3920	3000	70	0.0230
300	20	0.3645	3000	80	0.0145
300	30	0.3338	3000	85	0.0110
300	40	0.2929	3000	90	0.0080
300	50	0.2432	3000	95	0.0057
300	60	0.1861	6000	0	0.0288
300	70	0.1230	6000	20	0.0265
300	80	0.0576	6000	30	0.0241
300	85	0.0287	6000	40	0.0210
300	90	0.0095	6000	50	0.0175
300	95	0.0024	6000	60	0.0139
600	0	0.2823	6000	70	0.0103
600	20	0.2613	6000	80	0.0072
600	30	0.2387	6000	85	0.0058
600	40	0.2088	6000	90	0.0046
600	50	0.1725	6000	95	0.0036
600	60	0.1309	10000	0	0.0130
600	70	0.0856	10000	20	0.0120
600	80	0.0416	10000	30	0.0110
600	85	0.0235	10000	40	0.0096
600	90	0.0112	10000	50	0.0082
600	95	0.0047	10000	60	0.0066
1000	0	0.2046	10000	70	0.0051
1000	20	0.1885	10000	80	0.0037
1000	30	0.1717	10000	85	0.0031
1000	40	0.1497	10000	90	0.0026
1000	50	0.1231	10000	95	0.0021
1000	60	0.0927			

Table 56. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$$\gamma = 120°, \qquad \phi_c = 150°$$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.5289	1000	70	0.0527
100	20	0.4929	1000	80	0.0243
100	30	0.4520	1000	85	0.0139
100	40	0.3974	1000	90	0.0070
100	50	0.3307	1000	95	0.0032
100	60	0.2539	3000	0	0.0723
100	70	0.1695	3000	20	0.0648
100	80	0.0794	3000	30	0.0581
100	85	0.0348	3000	40	0.0495
100	90	0.0032	3000	50	0.0397
100	95	0.0001	3000	60	0.0294
300	0	0.3920	3000	70	0.0197
300	20	0.3616	3000	80	0.0116
300	30	0.3296	3000	85	0.0085
300	40	0.2875	3000	90	0.0060
300	50	0.2368	3000	95	0.0041
300	60	0.1788	6000	0	0.0288
300	70	0.1152	6000	20	0.0258
300	80	0.0498	6000	30	0.0233
300	85	0.0218	6000	40	0.0200
300	90	0.0053	6000	50	0.0164
300	95	0.0010	6000	60	0.0127
600	0	0.2813	6000	70	0.0092
600	20	0.2572	6000	80	0.0062
600	30	0.2332	6000	85	0.0049
600	40	0.2020	6000	90	0.0038
600	50	0.1648	6000	95	0.0029
600	60	0.1224	10000	0	0.0130
600	70	0.0766	10000	20	0.0118
600	80	0.0333	10000	30	0.0107
600	85	0.0166	10000	40	0.0093
600	90	0.0065	10000	50	0.0078
600	95	0.0022	10000	60	0.0062
1000	0	0.2039	10000	70	0.0047
1000	20	0.1849	10000	80	0.0034
1000	30	0.1668	10000	85	0.0028
1000	40	0.1436	10000	90	0.0023
1000	50	0.1160	10000	95	0.0018
1000	60	0.0849			

CONVAIR ASTRONAUTICS

Table 57. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\lambda = 120°,$ $\phi_c = 180°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.5289	1000	70	0.0497
100	20	0.4922	1000	80	0.0216
100	30	0.4511	1000	85	0.0117
100	40	0.3962	1000	90	0.0054
100	50	0.3292	1000	95	0.0022
100	60	0.2523	3000	0	0.0723
100	70	0.1677	3000	20	0.0643
100	80	0.0776	3000	30	0.0573
100	85	0.0330	3000	40	0.0485
100	90	0.0022	3000	50	0.0386
100	95	0.0000	3000	60	0.0282
300	0	0.3920	3000	70	0.0185
300	20	0.3605	3000	80	0.0106
300	30	0.3280	3000	85	0.0076
500	40	0.2856	5000	90	0.0052
300	50	0.2344	5000	95	0.0035
300	60	0.1761	6000	0	0.0288
300	70	0.1123	6000	20	0.0257
300	80	0.0469	6000	30	0.0230
300	85	0.0192	6000	40	0.0197
300	90	0.0037	6000	50	0.0160
300	95	0.0005	6000	60	0.0123
600	0	0.2811	6000	70	0.0088
600	20	0.2558	6000	80	0.0058
600	30	0.2313	6000	85	0.0046
600	40	0.1997	6000	90	0.0036
600	50	0.1620	6000	95	0.0027
600	60	0.1194	10000	0	0.0130
600	70	0.0734	10000	20	0.0117
600	80	0.0302	10000	30	0.0106
600	85	0.0141	10000	40	0.0092
600	90	0.0048	10000	50	0.0076
600	95	0.0013	10000	60	0.0060
1000	0	0.2037	10000	70	0.0046
1000	20	0.1837	10000	80	0.0032
1000	30	0.1650	10000	85	0.0027
1000	40	0.1414	10000	90	0.0022
1000	50	0.1135	10000	95	0.0017
1000	60	0.0821			

Table 58. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$$\gamma = 150°, \qquad \phi_c = 0°$$

Altitude n. m.	θ_S degrees	F	Altitude n. m.	θ_S degrees	F
100	0	0.3545	1000	70	0.0482
100	20	0.3359	1000	80	0.0322
100	30	0.3111	1000	85	0.0242
100	40	0.2768	1000	90	0.0166
100	50	0.2341	1000	95	0.0102
100	60	0.1842	3000	0	0.0270
100	70	0.1288	3000	20	0.0276
100	80	0.0691	3000	30	0.0267
100	85	0.0387	3000	40	0.0249
100	90	0.0112	3000	50	0.0224
100	95	0.0010	3000	60	0.0192
300	0	0.2379	3000	70	0.0155
300	20	0.2281	3000	80	0.0115
300	30	0.2126	3000	85	0.0095
300	40	0.1907	3000	90	0.0076
300	50	0.1630	3000	95	0.0058
300	60	0.1304	6000	0	0.0091
300	70	0.0935	6000	20	0.0094
300	80	0.0538	6000	30	0.0091
300	85	0.0348	6000	40	0.0085
300	90	0.0172	6000	50	0.0077
300	95	0.0056	6000	60	0.0067
600	0	0.1566	6000	70	0.0055
600	20	0.1522	6000	80	0.0042
600	30	0.1431	6000	85	0.0036
600	40	0.1295	6000	90	0.0030
600	50	0.1121	6000	95	0.0025
600	60	0.0912	10000	0	0.0038
600	70	0.0677	10000	20	0.0038
600	80	0.0425	10000	30	0.0037
600	85	0.0300	10000	40	0.0035
600	90	0.0183	10000	50	0.0031
600	95	0.0093	10000	60	0.0027
1000	0	0.1022	10000	70	0.0022
1000	20	0.1008	10000	80	0.0018
1000	30	0.0955	10000	85	0.0015
1000	40	0.0872	10000	90	0.0013
1000	50	0.0764	10000	95	0.0011
1000	60	0.0632			

Table 59.   GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 150°,$ $\phi_c = 30°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.3545	1000	70	0.0465
100	20	0.3355	1000	80	0.0306
100	30	0.3105	1000	85	0.0229
100	40	0.2761	1000	90	0.0157
100	50	0.2332	1000	95	0.0096
100	60	0.1833	3000	0	0.0270
100	70	0.1278	3000	20	0.0273
100	80	0.0680	3000	30	0.0262
100	85	0.0377	3000	40	0.0243
100	90	0.0107	3000	50	0.0217
100	95	0.0009	3000	60	0.0185
300	0	0.2379	3000	70	0.0148
300	20	0.2274	3000	80	0.0109
300	30	0.2117	3000	85	0.0090
300	40	0.1896	3000	90	0.0071
300	50	0.1617	3000	95	0.0055
300	60	0.1288	6000	0	0.0091
300	70	0.0918	6000	20	0.0092
300	80	0.0522	6000	30	0.0089
300	85	0.0333	6000	40	0.0083
300	90	0.0163	6000	50	0.0075
300	95	0.0053	6000	60	0.0064
600	0	0.1562	6000	70	0.0053
600	20	0.1512	6000	80	0.0040
600	30	0.1418	6000	85	0.0034
600	40	0.1280	6000	90	0.0029
600	50	0.1104	6000	95	0.0023
600	60	0.0893	10000	0	0.0038
600	70	0.0657	10000	20	0.0038
600	80	0.0407	10000	30	0.0036
600	85	0.0285	10000	40	0.0034
600	90	0.0173	10000	50	0.0030
600	95	0.0088	10000	60	0.0026
1000	0	0.1019	10000	70	0.0022
1000	20	0.0999	10000	80	0.0017
1000	30	0.0943	10000	85	0.0015
1000	40	0.0859	10000	90	0.0012
1000	50	0.0748	10000	95	0.0010
1000	60	0.0615			

Table 60. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\lambda = 150,$ $\phi_c = 60°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.3545	1000	70	0.0418
100	20	0.3345	1000	80	0.0265
100	30	0.3090	1000	85	0.0194
100	40	0.2742	1000	90	0.0131
100	50	0.2310	1000	95	0.0080
100	60	0.1807	3000	0	0.0268
100	70	0.1250	3000	20	0.0264
100	80	0.0651	3000	30	0.0249
100	85	0.0349	3000	40	0.0227
100	90	0.0092	3000	50	0.0199
100	95	0.0008	3000	60	0.0165
300	0	0.2379	3000	70	0.0129
300	20	0.2258	3000	80	0.0093
300	30	0.2093	3000	85	0.0075
300	40	0.1865	3000	90	0.0059
300	50	0.1580	3000	95	0.0045
300	60	0.1246	6000	0	0.0090
300	70	0.0873	6000	20	0.0089
300	80	0.0477	6000	30	0.0085
300	85	0.0293	6000	40	0.0077
300	90	0.0139	6000	50	0.0068
300	95	0.0045	6000	60	0.0058
600	0	0.1554	6000	70	0.0046
600	20	0.1487	6000	80	0.0035
600	30	0.1385	6000	85	0.0029
600	40	0.1240	6000	90	0.0024
600	50	0.1058	6000	95	0.0020
600	60	0.0844	10000	0	0.0037
600	70	0.0606	10000	20	0.0037
600	80	0.0359	10000	30	0.0035
600	85	0.0245	10000	40	0.0032
600	90	0.0146	10000	50	0.0028
600	95	0.0073	10000	60	0.0024
1000	0	0.1014	10000	70	0.0019
1000	20	0.0977	10000	80	0.0015
1000	30	0.0914	10000	85	0.0013
1000	40	0.0823	10000	90	0.0011
1000	50	0.0707	10000	95	0.0009
1000	60	0.0570			

CONVAIR | ASTRONAUTICS

Table 61. GEOMETRIC FACTOR FOR ALBEDO TO A **HEMISPHERE**

$\lambda = 150°,$ $\phi_c = 90°$

Altitude n. m.	θ_S degrees	F	Altitude n. m.	θ_S degrees	F
100	0	0.3545	1000	70	0.0354
100	20	0.3331	1000	80	0.0208
100	30	0.3070	1000	85	0.0147
100	40	0.2716	1000	90	0.0096
100	50	0.2279	1000	95	0.0058
100	60	0.1772	3000	0	0.0267
100	70	0.1212	3000	20	0.0251
100	80	0.0612	3000	30	0.0232
100	85	0.0311	3000	40	0.0206
100	90	0.0072	3000	50	0.0173
100	95	0.0006	3000	60	0.0138
300	0	0.2379	3000	70	0.0103
300	20	0.2235	3000	80	0.0070
300	30	0.2060	3000	85	0.0056
300	40	0.1822	3000	90	0.0043
300	50	0.1529	3000	95	0.0032
300	60	0.1189	6000	0	0.0090
300	70	0.0811	6000	20	0.0085
300	80	0.0415	6000	30	0.0078
300	85	0.0239	6000	40	0.0070
300	90	0.0106	6000	50	0.0059
300	95	0.0034	6000	60	0.0048
600	0	0.1545	6000	70	0.0037
600	20	0.1453	6000	80	0.0027
600	30	0.1340	6000	85	0.0022
600	40	0.1187	6000	90	0.0018
600	50	0.0997	6000	95	0.0014
600	60	0.0776	10000	0	0.0037
600	70	0.0535	10000	20	0.0035
600	80	0.0294	10000	30	0.0032
600	85	0.0190	10000	40	0.0029
600	90	0.0109	10000	50	0.0025
600	95	0.0054	10000	60	0.0021
1000	0	0.1007	10000	70	0.0016
1000	20	0.0948	10000	80	0.0012
1000	30	0.0875	10000	85	0.0010
1000	40	0.0774	10000	90	0.0008
1000	50	0.0651	10000	95	0.0007
1000	60	0.0508			

Table 62. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 150°$, $\phi_c = 120°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.3545	1000	70	0.0290
100	20	0.3317	1000	80	0.0152
100	30	0.3050	1000	85	0.0099
100	40	0.2690	1000	90	0.0061
100	50	0.2248	1000	95	0.0035
100	60	0.1737	3000	0	0.0265
100	70	0.1174	3000	20	0.0239
100	80	0.0572	3000	30	0.0215
100	85	0.0273	3000	40	0.0184
100	90	0.0052	3000	50	0.0148
100	95	0.0004	3000	60	0.0111
300	0	0.2379	3000	70	0.0076
300	20	0.2213	3000	80	0.0048
300	30	0.2027	3000	85	0.0036
300	40	0.1780	3000	90	0.0027
300	50	0.1478	3000	95	0.0019
300	60	0.1132	6000	0	0.0089
300	70	0.0749	6000	20	0.0080
300	80	0.0354	6000	30	0.0072
300	85	0.0184	6000	40	0.0062
300	90	0.0073	6000	50	0.0050
300	95	0.0022	6000	60	0.0039
600	0	0.1536	6000	70	0.0028
600	20	0.1420	6000	80	0.0019
600	30	0.1296	6000	85	0.0016
600	40	0.1133	6000	90	0.0012
600	50	0.0935	6000	95	0.0009
600	60	0.0709	10000	0	0.0037
600	70	0.0464	10000	20	0.0034
600	80	0.0229	10000	30	0.0030
600	85	0.0136	10000	40	0.0026
600	90	0.0072	10000	50	0.0022
600	95	0.0034	10000	60	0.0017
1000	0	0.1001	10000	70	0.0013
1000	20	0.0919	10000	80	0.0009
1000	30	0.0835	10000	85	0.0008
1000	40	0.0726	10000	90	0.0006
1000	50	0.0595	10000	95	0.0005
1000	60	0.0446			

CONVAIR ASTRONAUTICS

Table 63.   GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 150°$ $\phi_c = 150°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.3545	1000	70	0.0244
100	20	0.3307	1000	80	0.0111
100	30	0.3035	1000	85	0.0065
100	40	0.2671	1000	90	0.0036
100	50	0.2225	1000	95	0.0019
100	60	0.1712	3000	0	0.0264
100	70	0.1146	3000	20	0.0230
100	80	0.0543	3000	30	0.0202
100	85	0.0245	3000	40	0.0168
100	90	0.0037	3000	50	0.0130
100	95	0.0003	3000	60	0.0092
300	0	0.2379	3000	70	0.0057
300	20	0.2196	3000	80	0.0031
300	30	0.2003	3000	85	0.0022
300	40	0.1748	3000	90	0.0015
300	50	0.1441	3000	95	0.0010
300	60	0.1090	6000	0	0.0089
300	70	0.0704	6000	20	0.0077
300	80	0.0309	6000	30	0.0067
300	85	0.0144	6000	40	0.0056
300	90	0.0048	6000	50	0.0044
300	95	0.0014	6000	60	0.0032
600	0	0.1530	6000	70	0.0022
600	20	0.1396	6000	80	0.0014
600	30	0.1265	6000	85	0.0010
600	40	0.1094	6000	90	0.0008
600	50	0.0891	6000	95	0.0006
600	60	0.0660	10000	0	0.0037
600	70	0.0412	10000	20	0.0032
600	80	0.0181	10000	30	0.0029
600	85	0.0095	10000	40	0.0024
600	90	0.0045	10000	50	0.0019
600	95	0.0020	10000	60	0.0015
1000	0	0.0997	10000	70	0.0011
1000	20	0.0898	10000	80	0.0007
1000	30	0.0807	10000	85	0.0006
1000	40	0.0691	10000	90	0.0005
1000	50	0.0554	10000	95	0.0003
1000	60	0.0401			

Table 64. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 150°$, $\phi_c = 180°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.3545	1000	70	0.0227
100	20	0.3304	1000	80	0.0095
100	30	0.3030	1000	85	0.0052
100	40	0.2664	1000	90	0.0026
100	50	0.2217	1000	95	0.0013
100	60	0.1702	3000	0	0.0264
100	70	0.1136	3000	20	0.0227
100	80	0.0533	3000	30	0.0197
100	85	0.0235	3000	40	0.0162
100	90	0.0031	3000	50	0.0123
100	95	0.0002	3000	60	0.0084
300	0	0.2379	3000	70	0.0050
300	20	0.2190	3000	80	0.0025
300	30	0.1994	3000	85	0.0017
300	40	0.1737	3000	90	0.0010
300	50	0.1427	3000	95	0.0006
300	60	0.1075	6000	0	0.0089
300	70	0.0687	6000	20	0.0076
300	80	0.0292	6000	30	0.0066
300	85	0.0130	6000	40	0.0054
300	90	0.0039	6000	50	0.0042
300	95	0.0011	6000	60	0.0030
600	0	0.1528	6000	70	0.0020
600	20	0.1388	6000	80	0.0012
600	30	0.1254	6000	85	0.0009
600	40	0.1081	6000	90	0.0006
600	50	0.0875	6000	95	0.0004
600	60	0.0643	10000	0	0.0067
600	70	0.0394	10000	20	0.0032
600	80	0.0163	10000	30	0.0028
600	85	0.0081	10000	40	0.0023
600	90	0.0035	10000	50	0.0019
600	95	0.0015	10000	60	0.0014
1000	0	0.0996	10000	70	0.0010
1000	20	0.0891	10000	80	0.0006
1000	30	0.0797	10000	85	0.0005
1000	40	0.0678	10000	90	0.0004
1000	50	0.0539	10000	95	0.0003
1000	60	0.0385			

Table 65. GEOMETRIC FACTOR FOR ALBEDO TO A HEMISPHERE

$\gamma = 180°$, $\phi_c = 0 -360°$

Altitude n. m.	θ_s degrees	F	Altitude n. m.	θ_s degrees	F
100	0	0.2907	1000	70	0.0221
100	20	0.2731	1000	80	0.0134
100	30	0.2517	1000	85	0.0098
100	40	0.2226	1000	90	0.0067
100	50	0.1868	1000	95	0.0042
100	60	0.1453	3000	0	0.0098
100	70	0.0994	3000	20	0.0093
100	80	0.0501	3000	30	0.0085
100	85	0.0256	3000	40	0.0076
100	90	0.0064	3000	50	0.0064
100	95	0.0006	3000	60	0.0052
300	0	0.1815	3000	70	0.0039
300	20	0.1705	3000	80	0.0028
300	30	0.1571	3000	85	0.0024
300	40	0.1390	3000	90	0.0019
300	50	0.1166	3000	95	0.0015
300	60	0.0907	6000	0	0.0017
300	70	0.0619	6000	20	0.0016
300	80	0.0318	6000	30	0.0015
300	85	0.0187	6000	40	0.0013
300	90	0.0089	6000	50	0.0011
300	95	0.0030	6000	60	0.0009
600	0	0.1073	6000	70	0.0008
600	20	0.1009	6000	80	0.0006
600	30	0.0931	6000	85	0.0005
600	40	0.0824	6000	90	0.0004
600	50	0.0692	6000	95	0.0003
600	60	0.0539	10000	0	0.0003
600	70	0.0373	10000	20	0.0003
600	80	0.0208	10000	30	0.0003
600	85	0.0139	10000	40	0.0002
600	90	0.0084	10000	50	0.0002
600	95	0.0044	10000	60	0.0002
1000	0	0.0625	10000	70	0.0001
1000	20	0.0588	10000	80	0.0001
1000	30	0.0542	10000	85	0.0001
1000	40	0.0480	10000	90	0.0001
1000	50	0.0403	10000	95	0.0001
1000	60	0.0316			

Figure 8 .   Geometry For Planetary Albedo to a Flat Plate

Geometric Factor, $F = \dfrac{q}{P\ Sa}$
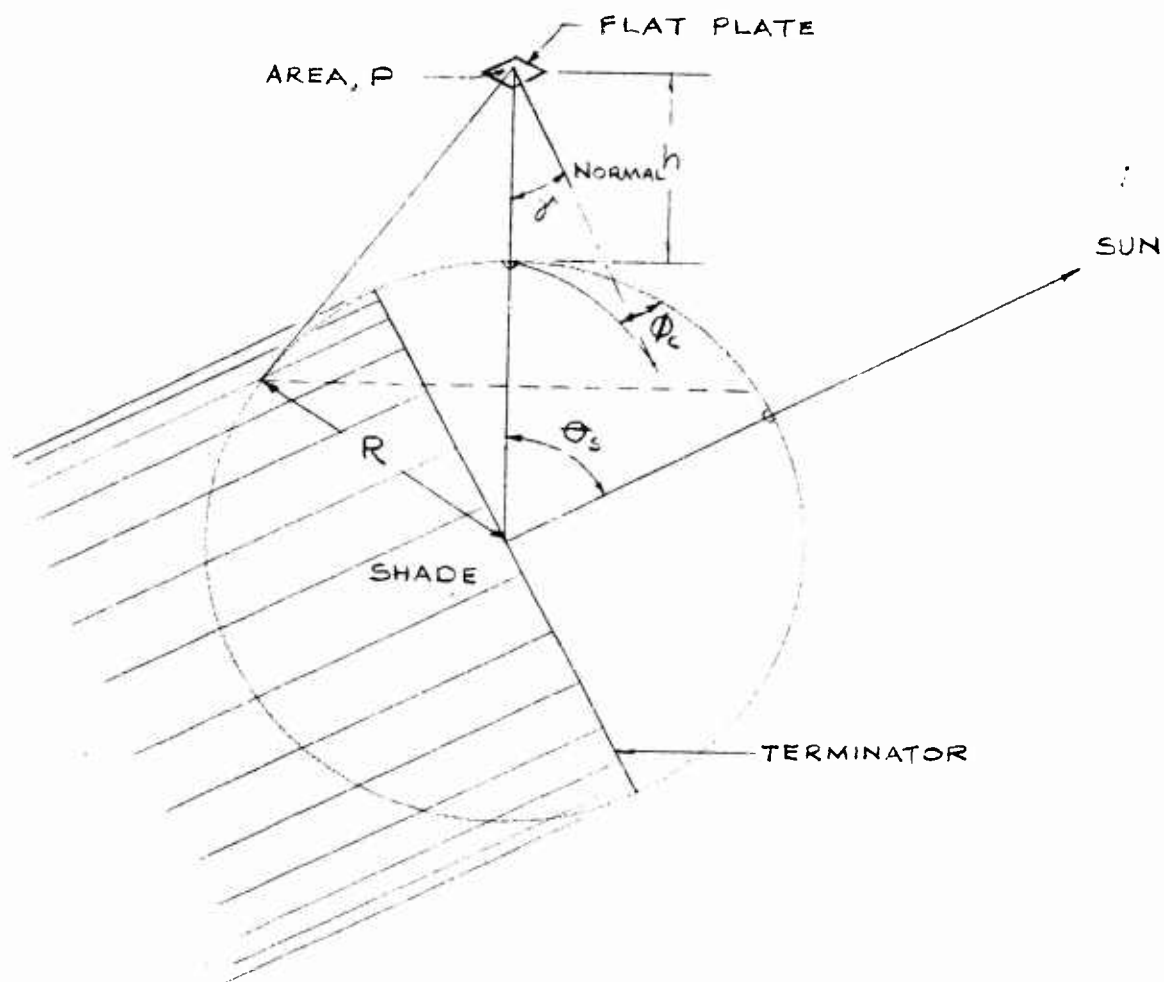
Table 66. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 0°$ $\phi_c = 0\text{-}360°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.9531	3000	0	0.2549
100	20	0.8956	3000	20	0.2395
100	30	0.8254	3000	30	0.2207
100	40	0.7301	3000	40	0.1944
100	50	0.6126	3000	50	0.1625
100	60	0.4765	3000	60	0.1278
100	70	0.3259	3000	70	0.0934
100	80	0.1645	3000	80	0.0619
100	85	0.0823	3000	85	0.0480
100	90	0.0112	3000	90	0.0359
300	0	0.8422	6000	0	0.1102
300	20	0.7914	6000	20	0.1036
300	30	0.7294	6000	30	0.0950
300	40	0.6452	6000	40	0.0837
300	50	0.5414	6000	50	0.0708
300	60	0.4211	6000	60	0.0573
300	70	0.2874	6000	70	0.0440
300	80	0.1459	6000	80	0.0316
300	85	0.0777	6000	85	0.0260
300	90	0.0253	6000	90	0.0209
600	0	0.7121	10000	0	0.0514
600	20	0.6691	10000	20	0.0482
600	30	0.6167	10000	30	0.0442
600	40	0.5455	10000	40	0.0391
600	50	0.4577	10000	50	0.0335
600	60	0.3557	10000	60	0.0276
600	70	0.2423	10000	70	0.0218
600	80	0.1271	10000	80	0.0163
600	85	0.0760	10000	85	0.0138
600	90	0.0367	10000	90	0.0114
1000	0	0.5792	20000	0	0.0158
1000	20	0.5443	20000	20	0.0148
1000	30	0.5016	20000	30	0.0136
1000	40	0.4437	20000	40	0.0121
1000	50	0.3723	20000	50	0.0105
1000	60	0.2882	20000	60	0.0089
1000	70	0.1976	20000	70	0.0072
1000	80	0.1102	20000	80	0.0056
1000	85	0.0728	20000	85	0.0048
1000	90	0.0429	20000	90	0.0041

FORM NO. A-702-1

CONVAIR ASTRONAUTICS

Table 67. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 30°$ $\phi_c = 0°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.8243	3000	0	0.2207
100	20	0.7795	3000	20	0.2119
100	30	0.7211	3000	30	0.1977
100	40	0.6407	3000	40	0.1766
100	50	0.5409	3000	50	0.1503
100	60	0.4246	3000	60	0.1211
100	70	0.2955	3000	70	0.0912
100	80	0.1550	3000	80	0.0625
100	85	0.0830	3000	85	0.0494
100	90	0.0178	3000	90	0.0376
300	0	0.7241	6000	0	0.0954
300	20	0.6892	6000	20	0.0913
300	30	0.6399	6000	30	0.0846
300	40	0.5712	6000	40	0.0754
300	50	0.4851	6000	50	0.0647
300	60	0.3842	6000	60	0.0532
300	70	0.2750	6000	70	0.0416
300	80	0.1509	6000	80	0.0304
300	85	0.0890	6000	85	0.0252
300	90	0.0351	6000	90	0.0205
600	0	0.6167	10000	0	0.0445
600	20	0.5896	10000	20	0.0423
600	30	0.5489	10000	30	0.0391
600	40	0.4915	10000	40	0.0350
600	50	0.4192	10000	50	0.0302
600	60	0.3337	10000	60	0.0252
600	70	0.2370	10000	70	0.0202
600	80	0.1358	10000	80	0.0153
600	85	0.0876	10000	85	0.0129
600	90	0.0467	10000	90	0.0108
1000	0	0.5016	20000	0	0.0137
1000	20	0.4809	20000	20	0.0129
1000	30	0.4484	20000	30	0.0119
1000	40	0.4022	20000	40	0.0107
1000	50	0.3438	20000	50	0.0094
1000	60	0.2733	20000	60	0.0079
1000	70	0.1959	20000	70	0.0065
1000	80	0.1178	20000	80	0.0050
1000	85	0.0819	20000	85	0.0043
1000	90	0.0511	20000	90	0.0037

CONVAIR ASTRONAUTICS

Table 68. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\delta = 30°$ $\phi_c = 30°$

| Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.8243	3000	0	0.2207
100	20	0.7788	3000	20	0.2113
100	30	0.7201	3000	30	0.1968
100	40	0.6395	3000	40	0.1755
100	50	0.5394	3000	50	0.1490
100	60	0.4230	3000	60	0.1197
100	70	0.2937	3000	70	0.0898
100	80	0.1554	3000	80	0.0613
100	85	0.0841	3000	85	0.0483
100	90	0.0167	3000	90	0.0367
300	0	0.7241	6000	0	0.0954
300	20	0.6880	6000	20	0.0911
300	30	0.6382	6000	30	0.0843
300	40	0.5690	6000	40	0.0750
300	50	0.4824	6000	50	0.0642
300	60	0.3813	6000	60	0.0527
300	70	0.2680	6000	70	0.0411
300	80	0.1476	6000	80	0.0300
300	85	0.0861	6000	85	0.0249
300	90	0.0534	6000	90	0.0201
600	0	0.6167	10000	0	0.0445
600	20	0.5883	10000	20	0.0422
600	30	0.5469	10000	30	0.0390
600	40	0.4889	10000	40	0.0348
600	50	0.4161	10000	50	0.0301
600	60	0.3303	10000	60	0.0251
600	70	0.2334	10000	70	0.0200
600	80	0.1323	10000	80	0.0151
600	85	0.0847	10000	85	0.0128
600	90	0.0447	10000	90	0.0107
1000	0	0.5016	20000	0	0.0137
1000	20	0.4796	20000	20	0.0129
1000	30	0.4465	20000	30	0.0119
1000	40	0.3998	20000	40	0.0107
1000	50	0.3409	20000	50	0.0093
1000	60	0.2702	20000	60	0.0079
1000	70	0.1925	20000	70	0.0064
1000	80	0.1148	20000	80	0.0050
1000	85	0.0794	20000	85	0.0043
1000	90	0.0492	20000	90	0.0037

Table 69. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\delta = 30°$ $\phi_c = 60°$

Altitude n. m.	Θ_s degree	F	Altitude n. m.	Θ_s degree	F
100	0	0.8243	3000	0	0.2207
100	20	0.7770	3000	20	0.2097
100	30	0.7175	3000	30	0.1944
100	40	0.6361	3000	40	0.1725
100	50	0.5354	3000	50	0.1455
100	60	0.4184	3000	60	0.1159
100	70	0.2887	3000	70	0.0860
100	80	0.1455	3000	80	0.0581
100	85	0.0790	3000	85	0.0455
100	90	0.0137	3000	90	0.0343
300	0	0.7241	6000	0	0.0954
300	20	0.6848	6000	20	0.0905
300	30	0.6335	6000	30	0.0834
300	40	0.5629	6000	40	0.0740
300	50	0.4752	6000	50	0.0630
300	60	0.3731	6000	60	0.0514
300	70	0.2595	6000	70	0.0398
300	80	0.1380	6000	80	0.0289
300	85	0.0778	6000	85	0.0239
300	90	0.0285	6000	90	0.0193
600	0	0.6167	10000	0	0.0445
600	20	0.5846	10000	20	0.0420
600	30	0.5415	10000	30	0.0387
600	40	0.4819	10000	40	0.0344
600	50	0.4078	10000	50	0.0296
600	60	0.3209	10000	60	0.0246
600	70	0.2234	10000	70	0.0195
600	80	0.1229	10000	80	0.0147
600	85	0.0767	10000	85	0.0124
600	90	0.0392	10000	90	0.0103
1000	0	0.5016	20000	0	0.0137
1000	20	0.4761	20000	20	0.0129
1000	30	0.4414	20000	30	0.0119
1000	40	0.3932	20000	40	0.0106
1000	50	0.3331	20000	50	0.0092
1000	60	0.2615	20000	60	0.0078
1000	70	0.1835	20000	70	0.0063
1000	80	0.1066	20000	80	0.0049
1000	85	0.0725	20000	85	0.0042
1000	90	0.0441	20000	90	0.0036

Table 70. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 30°$ $\phi_c = 90°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.8243	3000	0	0.2207
100	20	0.7746	3000	20	0.2074
100	30	0.7138	3000	30	0.1912
100	40	0.6314	3000	40	0.1683
100	50	0.5298	3000	50	0.1407
100	60	0.4121	3000	60	0.1107
100	70	0.2819	3000	70	0.0809
100	80	0.1430	3000	80	0.0536
100	85	0.0721	3000	85	0.0416
100	90	0.0090	3000	90	0.0310
300	0	0.7241	6000	0	0.0954
300	20	0.6804	6000	20	0.0897
300	30	0.6271	6000	30	0.0823
300	40	0.5547	6000	40	0.0725
300	50	0.4654	6000	50	0.0613
300	60	0.3620	6000	60	0.0496
300	70	0.2475	6000	70	0.0381
300	80	0.1266	6000	80	0.0274
300	85	0.0671	6000	85	0.0225
300	90	0.0217	6000	90	0.0181
600	0	0.6167	10000	0	0.0445
600	20	0.5795	10000	20	0.0417
600	30	0.5340	10000	30	0.0383
600	40	0.4724	10000	40	0.0339
600	50	0.3964	10000	50	0.0290
600	60	0.3081	10000	60	0.0239
600	70	0.2098	10000	70	0.0189
600	80	0.1101	10000	80	0.0141
600	85	0.0658	10000	85	0.0119
600	90	0.0318	10000	90	0.0099
1000	0	0.5016	20000	0	0.0137
1000	20	0.4714	20000	20	0.0128
1000	30	0.4344	20000	30	0.0118
1000	40	0.3843	20000	40	0.0105
1000	50	0.3224	20000	50	0.0091
1000	60	0.2496	20000	60	0.0077
1000	70	0.1711	20000	70	0.0062
1000	80	0.0954	20000	80	0.0048
1000	85	0.0631	20000	85	0.0041
1000	90	0.0371	20000	90	0.0035

FORM NO A 7021

CONVAIR ASTRONAUTICS

Table 71. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 30°$ $\phi_c = 120°$

Altitude n. m.	θ_S degree	F	Altitude n. m.	θ_S degree	F
100	0	0.8243	3000	0	0.2207
100	20	0.7721	3000	20	0.2052
100	30	0.7102	3000	30	0.1879
100	40	0.6268	3000	40	0.1642
100	50	0.5243	3000	50	0.1359
100	60	0.4058	3000	60	0.1055
100	70	0.2751	3000	70	0.0757
100	80	0.1359	3000	80	0.0491
100	85	0.0652	3000	85	0.0376
100	90	0.0063	3000	90	0.0278
300	0	0.7241	6000	0	0.0954
300	20	0.6760	6000	20	0.0889
300	30	0.6207	6000	30	0.0811
300	40	0.5464	6000	40	0.0710
300	50	0.4556	6000	50	0.0596
300	60	0.3509	6000	60	0.0478
300	70	0.2355	6000	70	0.0363
300	80	0.1145	6000	80	0.0258
300	85	0.0565	6000	85	0.0211
300	90	0.0153	6000	90	0.0169
600	0	0.6167	10000	0	0.0445
600	20	0.5744	10000	20	0.0414
600	30	0.5266	10000	30	0.0378
600	40	0.4628	10000	40	0.0333
600	50	0.3850	10000	50	0.0284
600	60	0.2952	10000	60	0.0233
600	70	0.1962	10000	70	0.0183
600	80	0.0973	10000	80	0.0136
600	85	0.0549	10000	85	0.0114
600	90	0.0244	10000	90	0.0094
1000	0	0.5016	20000	0	0.0137
1000	20	0.4666	20000	20	0.0127
1000	30	0.4274	20000	30	0.0117
1000	40	0.3753	20000	40	0.0104
1000	50	0.3117	20000	50	0.0090
1000	60	0.2378	20000	60	0.0075
1000	70	0.1588	20000	70	0.0061
1000	80	0.0842	20000	80	0.0047
1000	85	0.0536	20000	85	0.0040
1000	90	0.0301	20000	90	0.0034

CONVAIR ASTRONAUTICS

Table 72. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 30°$ $\phi_c = 150°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.8243	3000	0	0.2207
100	20	0.7703	3000	20	0.2036
100	30	0.7076	3000	30	0.1855
100	40	0.6234	3000	40	0.1612
100	50	0.5202	3000	50	0.1324
100	60	0.4013	3000	60	0.1016
100	70	0.2701	3000	70	0.0719
100	80	0.1307	3000	80	0.0458
100	85	0.0603	3000	85	0.0348
100	90	0.0039	3000	90	0.0254
300	0	0.7241	6000	0	0.0954
300	20	0.6728	6000	20	0.0883
300	30	0.6160	6000	30	0.0802
300	40	0.5404	6000	40	0.0699
300	50	0.4484	6000	50	0.0583
300	60	0.3428	6000	60	0.0465
300	70	0.2367	6000	70	0.0350
300	80	0.1056	6000	80	0.0247
300	85	0.0488	6000	85	0.0201
300	90	0.0107	6000	90	0.0160
600	0	0.6167	10000	0	0.0445
600	20	0.5707	10000	20	0.0412
600	30	0.5212	10000	30	0.0375
600	40	0.4558	10000	40	0.0329
600	50	0.3766	10000	50	0.0279
600	60	0.2858	10000	60	0.0228
600	70	0.1863	10000	70	0.0178
600	80	0.0879	10000	80	0.0132
600	85	0.0470	10000	85	0.0111
600	90	0.0189	10000	90	0.0091
1000	0	0.5016	20000	0	0.0137
1000	20	0.4631	20000	20	0.0127
1000	30	0.4223	20000	30	0.0116
1000	40	0.3687	20000	40	0.0103
1000	50	0.3039	20000	50	0.0089
1000	60	0.2291	20000	60	0.0075
1000	70	0.1497	20000	70	0.0060
1000	80	0.0761	20000	80	0.0046
1000	85	0.0467	20000	85	0.0040
1000	90	0.0250	20000	90	0.0034

Table 73. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 30°$ $\phi_c = 180°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.8243	3000	0	0.2207
100	20	0.7696	3000	20	0.2030
100	30	0.7066	3000	30	0.1846
100	40	0.6221	3000	40	0.1601
100	50	0.5187	3000	50	0.1311
100	60	0.3996	3000	60	0.1003
100	70	0.2683	3000	70	0.0705
100	80	0.1288	3000	80	0.0446
100	85	0.0584	3000	85	0.0337
100	90	0.0030	3000	90	0.0245
300	0	0.7241	6000	0	0.0954
300	20	0.6717	6000	20	0.0880
300	30	0.6143	6000	30	0.0799
300	40	0.5382	6000	40	0.0695
300	50	0.4458	6000	50	0.0579
300	60	0.3398	6000	60	0.0460
300	70	0.2235	6000	70	0.0346
300	80	0.1024	6000	80	0.0243
300	85	0.0459	6000	85	0.0197
300	90	0.0090	6000	90	0.0157
600	0	0.6167	10000	0	0.0445
600	20	0.5693	10000	20	0.0411
600	30	0.5192	10000	30	0.0374
600	40	0.4533	10000	40	0.0328
600	50	0.3736	10000	50	0.0278
600	60	0.2824	10000	60	0.0226
600	70	0.1826	10000	70	0.0177
600	80	0.0844	10000	80	0.0130
600	85	0.0440	10000	85	0.0109
600	90	0.0169	10000	90	0.0090
1000	0	0.5016	20000	0	0.0137
1000	20	0.4618	20000	20	0.0127
1000	30	0.4205	20000	30	0.0116
1000	40	0.3663	20000	40	0.0103
1000	50	0.3010	20000	50	0.0089
1000	60	0.2259	20000	60	0.0074
1000	70	0.1464	20000	70	0.0060
1000	80	0.0731	20000	80	0.0046
1000	85	0.0442	20000	85	0.0039
1000	90	0.0232	20000	90	0.0033

Table 74. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 60°$　　　　　　　　　　　　$\phi_c = 0°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.6004	3000	0	0.1260
100	20	0.5708	3000	20	0.1259
100	30	0.5296	3000	30	0.1201
100	40	0.4723	3000	40	0.1116
100	50	0.4006	3000	50	0.0982
100	60	0.3168	3000	60	0.0820
100	70	0.2234	3000	70	0.0646
100	80	0.1220	3000	80	0.0464
100	85	0.0679	3000	85	0.0375
100	90	0.0196	3000	90	0.0292
300	0	0.4905	6000	0	0.0551
300	20	0.4727	6000	20	0.0546
300	30	0.4420	6000	30	0.0516
300	40	0.3979	6000	40	0.0470
300	50	0.3417	6000	50	0.0413
300	60	0.2751	6000	60	0.0349
300	70	0.2050	6000	70	0.0281
300	80	0.1170	6000	80	0.0211
300	85	0.0760	6000	85	0.0177
300	90	0.0355	6000	90	0.0146
600	0	0.3889	10000	0	0.0257
600	20	0.3798	10000	20	0.0251
600	30	0.3577	10000	30	0.0236
600	40	0.3248	10000	40	0.0214
600	50	0.2821	10000	50	0.0189
600	60	0.2334	10000	60	0.0160
600	70	0.1675	10000	70	0.0131
600	80	0.1050	10000	80	0.0101
600	85	0.0758	10000	85	0.0086
600	90	0.0441	10000	90	0.0072
1000	0	0.3017	20000	0	0.0079
1000	20	0.2979	20000	20	0.0076
1000	30	0.2823	20000	30	0.0071
1000	40	0.2582	20000	40	0.0064
1000	50	0.2262	20000	50	0.0057
1000	60	0.1885	20000	60	0.0048
1000	70	0.1410	20000	70	0.0040
1000	80	0.0938	20000	80	0.0031
1000	85	0.0691	20000	85	0.0027
1000	90	0.0456	20000	90	0.0023

Table 75. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 60°$ $\phi_c = 30°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.6004	3000	0	0.1260
100	20	0.5699	3000	20	0.1249
100	30	0.5283	3000	30	0.1186
100	40	0.4706	3000	40	0.1086
100	50	0.3986	3000	50	0.0955
100	60	0.3146	3000	60	0.0795
100	70	0.2209	3000	70	0.0622
100	80	0.1206	3000	80	0.0443
100	85	0.0686	3000	85	0.0357
100	90	0.0177	3000	90	0.0277
300	0	0.4905	6000	0	0.0551
300	20	0.4711	6000	20	0.0542
300	30	0.4397	6000	30	0.0510
300	40	0.3949	6000	40	0.0463
300	50	0.3381	6000	50	0.0405
300	60	0.2711	6000	60	0.0340
300	70	0.1962	6000	70	0.0272
300	80	0.1138	6000	80	0.0204
300	85	0.0721	6000	85	0.0171
300	90	0.0325	6000	90	0.0140
600	0	0.3889	10000	0	0.0257
600	20	0.3778	10000	20	0.0250
600	30	0.3549	10000	30	0.0234
600	40	0.3212	10000	40	0.0212
600	50	0.2778	10000	50	0.0186
600	60	0.2?65	10000	60	0.0157
600	70	0.1664	10000	70	0.0128
600	80	0.1027	10000	80	0.0098
600	85	0.0707	10000	85	0.0084
600	90	0.0406	10000	90	0.0070
1000	0	0.3017	20000	0	0.0079
1000	20	0.2960	20000	20	0.0075
1000	30	0.2795	20000	30	0.0070
1000	40	0.2545	20000	40	0.0064
1000	50	0.2218	20000	50	0.0056
1000	60	0.1830	20000	60	0.0048
1000	70	0.1365	20000	70	0.0039
1000	80	0.0887	20000	80	0.0031
1000	85	0.0647	20000	85	0.0027
1000	90	0.0423	20000	90	0.0023

CONVAIR ASTRONAUTICS

Table 76. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 60°$ $\phi_c = 60°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.6004	3000	0	0.1260
100	20	0.5675	3000	20	0.1222
100	30	0.5248	3000	30	0.1146
100	40	0.4661	3000	40	0.1035
100	50	0.3933	3000	50	0.0895
100	60	0.3085	3000	60	0.0727
100	70	0.2143	3000	70	0.0556
100	80	0.1136	3000	80	0.0387
100	85	0.0616	3000	85	0.0307
100	90	0.0134	3000	90	0.0236
300	0	0.4905	6000	0	0.0551
300	20	0.4668	6000	20	0.0532
300	30	0.4334	6000	30	0.0495
300	40	0.3868	6000	40	0.0444
300	50	0.3285	6000	50	0.0383
300	60	0.2602	6000	60	0.0317
300	70	0.1837	6000	70	0.0250
300	80	0.1015	6000	80	0.0184
300	85	0.0606	6000	85	0.0153
300	90	0.0252	6000	90	0.0125
600	0	0.3889	10000	0	0.0257
600	20	0.3726	10000	20	0.0246
600	30	0.3472	10000	30	0.0228
600	40	0.3114	10000	40	0.0205
600	50	0.2660	10000	50	0.0178
600	60	0.2124	10000	60	0.0149
600	70	0.1518	10000	70	0.0120
600	80	0.0886	10000	80	0.0091
600	85	0.0580	10000	85	0.0077
600	90	0.0325	10000	90	0.0065
1000	0	0.3017	20000	0	0.0079
1000	20	0.2907	20000	20	0.0075
1000	30	0.2718	20000	30	0.0069
1000	40	0.2446	20000	40	0.0062
1000	50	0.2100	20000	50	0.0054
1000	60	0.1700	20000	60	0.0046
1000	70	0.1224	20000	70	0.0038
1000	80	0.0754	20000	80	0.0029
1000	85	0.0529	20000	85	0.0025
1000	90	0.0345	20000	90	0.0022

Table 77. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\delta = 60°$ $\phi_c = 90°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.6004	3000	0	0.1260
100	20	0.5642	3000	20	0.1184
100	30	0.5200	3000	30	0.1091
100	40	0.4599	3000	40	0.0964
100	50	0.3859	3000	50	0.0812
100	60	0.3002	3000	60	0.0637
100	70	0.2053	3000	70	0.0464
100	80	0.1042	3000	80	0.0306
100	85	0.0525	3000	85	0.0235
100	90	0.0078	3000	90	0.0175
300	0	0.4905	6000	0	0.0551
300	20	0.4609	6000	20	0.0518
300	30	0.4248	6000	30	0.0475
300	40	0.3757	6000	40	0.0418
300	50	0.3153	6000	50	0.0354
300	60	0.2452	6000	60	0.0286
300	70	0.1675	6000	70	0.0220
300	80	0.0852	6000	80	0.0158
300	85	0.0459	6000	85	0.0130
300	90	0.0148	6000	90	0.0104
600	0	0.3889	10000	0	0.0257
600	20	0.3654	10000	20	0.0241
600	30	0.3368	10000	30	0.0221
600	40	0.2979	10000	40	0.0195
600	50	0.2499	10000	50	0.0167
600	60	0.1943	10000	60	0.0138
600	70	0.1325	10000	70	0.0109
600	80	0.0700	10000	80	0.0081
600	85	0.0420	10000	85	0.0069
600	90	0.0198	10000	90	0.0057
1000	0	0.3017	20000	0	0.0079
1000	20	0.2835	20000	20	0.0074
1000	30	0.2613	20000	30	0.0068
1000	40	0.2311	20000	40	0.0060
1000	50	0.1939	20000	50	0.0052
1000	60	0.1503	20000	60	0.0044
1000	70	0.1035	20000	70	0.0036
1000	80	0.0580	20000	80	0.0028
1000	85	0.0381	20000	85	0.0024
1000	90	0.0222	20000	90	0.0020

CONVAIR ASTRONAUTICS

Table 78. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 60°$ $\phi_c = 120°$

Altitude n. m.	θ_S degree	F	Altitude n. m.	θ_S degree	F
100	0	0.6004	3000	0	0.1260
100	20	0.5609	3000	20	0.1146
100	30	0.5152	3000	30	0.1036
100	40	0.4538	3000	40	0.0894
100	50	0.3786	3000	50	0.0729
100	60	0.2919	3000	60	0.0548
100	70	0.1963	3000	70	0.0376
100	80	0.0948	3000	80	0.0230
100	85	0.0435	3000	85	0.0170
100	90	0.0052	3000	90	0.0121
300	0	0.4905	6000	0	0.0551
300	20	0.4550	6000	20	0.0503
300	30	0.4162	6000	30	0.0454
300	40	0.3647	6000	40	0.0393
300	50	0.3021	6000	50	0.0324
300	60	0.2303	6000	60	0.0255
300	70	0.1514	6000	70	0.0189
300	80	0.0693	6000	80	0.0131
300	85	0.0320	6000	85	0.0106
300	90	0.0074	6000	90	0.0083
600	0	0.3889	10000	0	0.0257
600	20	0.3582	10000	20	0.0235
600	30	0.3263	10000	30	0.0213
600	40	0.2844	10000	40	0.0186
600	50	0.2339	10000	50	0.0157
600	60	0.1762	10000	60	0.0127
600	70	0.1132	10000	70	0.0098
600	80	0.0521	10000	80	0.0072
600	85	0.0271	10000	85	0.0060
600	90	0.0105	10000	90	0.0049
1000	0	0.3017	20000	0	0.0079
1000	20	0.2763	20000	20	0.0073
1000	30	0.2507	20000	30	0.0066
1000	40	0.2176	20000	40	0.0059
1000	50	0.1778	20000	50	0.0050
1000	60	0.1323	20000	60	0.0042
1000	70	0.0847	20000	70	0.0034
1000	80	0.0414	20000	80	0.0026
1000	85	0.0243	20000	85	0.0022
1000	90	0.0123	20000	90	0.0019

CONVAIR ASTRONAUTICS

Table 79. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 60°$ $\phi_c = 150°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.6004	3000	0	0.1260
100	20	0.5585	3000	20	0.1119
100	30	0.5116	3000	30	0.0996
100	40	0.4492	3000	40	0.0842
100	50	0.3732	3000	50	0.0668
100	60	0.2858	3000	60	0.0482
100	70	0.1897	3000	70	0.0311
100	80	0.0880	3000	80	0.0174
100	85	0.0370	3000	85	0.0122
100	90	0.0012	3000	90	0.0080
300	0	0.4905	6000	0	0.0551
300	20	0.4507	6000	20	0.0493
300	30	0.4099	6000	30	0.0439
300	40	0.3566	6000	40	0.0374
300	50	0.2924	6000	50	0.0302
300	60	0.2194	6000	60	0.0232
300	70	0.1396	6000	70	0.0167
300	80	0.0577	6000	80	0.0112
300	85	0.0222	6000	85	0.0088
300	90	0.0026	6000	90	0.0068
600	0	0.3889	10000	0	0.0257
600	20	0.3530	10000	20	0.0232
600	30	0.3186	10000	30	0.0208
600	40	0.2745	10000	40	0.0179
600	50	0.2221	10000	50	0.0149
600	60	0.1629	10000	60	0.0118
600	70	0.0992	10000	70	0.0090
600	80	0.0391	10000	80	0.0065
600	85	0.0166	10000	85	0.0054
600	90	0.0042	10000	90	0.0043
1000	0	0.3017	20000	0	0.0079
1000	20	0.2710	20000	20	0.0072
1000	30	0.2430	20000	30	0.0065
1000	40	0.2077	20000	40	0.0057
1000	50	0.1660	20000	50	0.0049
1000	60	0.1191	20000	60	0.0040
1000	70	0.0710	20000	70	0.0032
1000	80	0.0293	20000	80	0.0024
1000	85	0.0145	20000	85	0.0021
1000	90	0.0065	20000	90	0.0017

FORM NO. A 702 1

Table 80. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 60°$ $\qquad\qquad$ $\phi_c = 180°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.6004	3000	0	0.1260
100	20	0.5576	3000	20	0.1108
100	30	0.5104	3000	30	0.0981
100	40	0.4476	3000	40	0.0823
100	50	0.3712	3000	50	0.0646
100	60	0.2836	3000	60	0.0458
100	70	0.1873	3000	70	0.0287
100	80	0.0855	3000	80	0.0154
100	85	0.0347	3000	85	0.0104
100	90	0.0003	3000	90	0.0066
300	0	0.4905	6000	0	0.0551
300	20	0.4491	6000	20	0.0489
300	30	0.4076	6000	30	0.0434
300	40	0.3536	6000	40	0.0367
300	50	0.2889	6000	50	0.0295
300	60	0.2154	6000	60	0.0223
300	70	0.1353	6000	70	0.0159
300	80	0.0534	6000	80	0.0105
300	85	0.0187	6000	85	0.0082
300	90	0.0010	6000	90	0.0062
600	0	0.3889	10000	0	0.0257
600	20	0.3511	10000	20	0.0230
600	30	0.3158	10000	30	0.0206
600	40	0.2709	10000	40	0.0177
600	50	0.2178	10000	50	0.0146
600	60	0.1581	10000	60	0.0115
600	70	0.0940	10000	70	0.0087
600	80	0.0344	10000	80	0.0062
600	85	0.0128	10000	85	0.0051
600	90	0.0020	10000	90	0.0041
1000	0	0.3017	20000	0	0.0079
1000	20	0.2691	20000	20	0.0072
1000	30	0.2402	20000	30	0.0065
1000	40	0.2040	20000	40	0.0057
1000	50	0.1617	20000	50	0.0048
1000	60	0.1143	20000	60	0.0040
1000	70	0.0660	20000	70	0.0031
1000	80	0.0249	20000	80	0.0024
1000	85	0.0109	20000	85	0.0020
1000	90	0.0032	20000	90	0.0017

CONVAIR ASTRONAUTICS

Table 81. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\delta = 90°$ $\phi_c = 0°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.3552	3000	0	0.0306
100	20	0.3393	3000	20	0.0332
100	30	0.3157	3000	30	0.0330
100	40	0.2825	3000	40	0.0324
100	50	0.2407	3000	50	0.0304
100	60	0.1916	3000	60	0.0274
100	70	0.1367	3000	70	0.0236
100	80	0.0890	3000	80	0.0188
100	85	0.0595	3000	85	0.0164
100	90	0.0161	3000	90	0.0130
300	0	0,2538	6000	0	0.0084
300	20	0.2475	6000	20	0.0095
300	30	0.2330	6000	30	0.0096
300	40	0.2114	6000	40	0.0093
300	50	0.1834	6000	50	0.0088
300	60	0.1498	6000	60	0.0081
300	70	0.1206	6000	70	0.0072
300	80	0.0779	6000	80	0.0061
300	85	0.0553	6000	85	0.0055
300	90	0.0264	6000	90	0.0048
600	0	0.1770	10000	0	0.0026
600	20	0.1765	10000	20	0.0031
600	30	0.1681	10000	30	0.0032
600	40	0.1547	10000	40	0.0032
600	50	0.1365	10000	50	0.0031
600	60	0.1204	10000	60	0.0029
600	70	0.0940	10000	70	0.0026
600	80	0.0644	10000	80	0.0022
600	85	0.0487	10000	85	0.0020
600	90	0.0297	10000	90	0.0017
1000	0	0.1198	20000	0	0.0004
1000	20	0.1221	20000	20	0.0005
1000	30	0.1177	20000	30	0.0005
1000	40	0.1097	20000	40	0.0005
1000	50	0.0983	20000	50	0.0005
1000	60	0.0864	20000	60	0.0005
1000	70	0.0696	20000	70	0.0004
1000	80	0.0507	20000	80	0.0004
1000	85	0.0406	20000	85	0.0003
1000	90	0.0278	20000	90	0.0003

Table 82. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 90°$

$\phi_c = 30°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.3552	3000	0	0.0306
100	20	0.3385	3000	20	0.0326
100	30	0.3146	3000	30	0.0322
100	40	0.2811	3000	40	0.0310
100	50	0.2390	3000	50	0.0284
100	60	0.1897	3000	60	0.0250
100	70	0.1346	3000	70	0.0206
100	80	0.0777	3000	80	0.0163
100	85	0.0443	3000	85	0.0140
100	90	0.0142	3000	90	0.0114
300	0	0.2538	6000	0	0.0084
300	20	0.2463	6000	20	0.0093
300	30	0.2312	6000	30	0.0094
300	40	0.2091	6000	40	0.0090
300	50	0.1807	6000	50	0.0084
300	60	0.1467	6000	60	0.0076
300	70	0.1105	6000	70	0.0067
300	80	0.0663	6000	80	0.0055
300	85	0.0443	6000	85	0.0049
300	90	0.0233	6000	90	0.0042
600	0	0.1770	10000	0	0.0026
600	20	0.1751	10000	20	0.0030
600	30	0.1661	10000	30	0.0031
600	40	0.1521	10000	40	0.0030
600	50	0.1535	10000	50	0.0028
600	60	0.1126	10000	60	0.0026
600	70	0.0851	10000	70	0.0023
600	80	0.0553	10000	80	0.0019
600	85	0.0406	10000	85	0.0017
600	90	0.0262	10000	90	0.0015
1000	0	0.1198	20000	0	0.0004
1000	20	0.1208	20000	20	0.0005
1000	30	0.1158	20000	30	0.0005
1000	40	0.1073	20000	40	0.0005
1000	50	0.0955	20000	50	0.0005
1000	60	0.0816	20000	60	0.0004
1000	70	0.0633	20000	70	0.0004
1000	80	0.0438	20000	80	0.0003
1000	85	0.0343	20000	85	0.0003
1000	90	0.0245	20000	90	0.0003

CONVAIR ASTRONAUTICS

Table 83. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\lambda = 90°$　　　　　　　　　　　　　　$\phi_c = 60°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.3552	3000	0	0.0306
100	20	0.3365	3000	20	0.0310
100	30	0.3116	3000	30	0.0298
100	40	0.2773	3000	40	0.0275
100	50	0.2345	3000	50	0.0243
100	60	0.1846	3000	60	0.0205
100	70	0.1290	3000	70	0.0165
100	80	0.0690	3000	80	0.0122
100	85	0.0382	3000	85	0.0100
100	90	0.0098	3000	90	0.0079
300	0	0.2538	6000	0	0.0084
300	20	0.2430	6000	20	0.0087
300	30	0.2264	6000	30	0.0084
300	40	0.2029	6000	40	0.0078
300	50	0.1732	6000	50	0.0070
300	60	0.1383	6000	60	0.0062
300	70	0.0992	6000	70	0.0051
300	80	0.0564	6000	80	0.0040
300	85	0.0352	6000	85	0.0034
300	90	0.0161	6000	90	0.0029
600	0	0.1770	10000	0	0.0026
600	20	0.1714	10000	20	0.0028
600	30	0.1607	10000	30	0.0027
600	40	0.1451	10000	40	0.0025
600	50	0.1251	10000	50	0.0023
600	60	0.1015	10000	60	0.0020
600	70	0.0738	10000	70	0.0017
600	80	0.0449	10000	80	0.0014
600	85	0.0310	10000	85	0.0012
600	90	0.0181	10000	90	0.0010
1000	0	0.1198	20000	0	0.0004
1000	20	0.1173	20000	20	0.0004
1000	30	0.1107	20000	30	0.0004
1000	40	0.1007	20000	40	0.0004
1000	50	0.0877	20000	50	0.0004
1000	60	0.0715	20000	60	0.0003
1000	70	0.0532	20000	70	0.0003
1000	80	0.0346	20000	80	0.0002
1000	85	0.0255	20000	85	0.0002
1000	90	0.0169	20000	90	0.0002

CONVAIR ASTRONAUTICS

Table 84. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 90°$ $\phi_c = 90°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.3552	3000	0	0.0306
100	20	0.3337	3000	20	0.0288
100	30	0.3076	3000	30	0.0265
100	40	0.2721	3000	40	0.0233
100	50	0.2283	3000	50	0.0194
100	60	0.1776	3000	60	0.0152
100	70	0.1214	3000	70	0.0111
100	80	0.0608	3000	80	0.0073
100	85	0.0305	3000	85	0.0056
100	90	0.0051	3000	90	0.0041
300	0	0.2538	6000	0	0.0084
300	20	0.2385	6000	20	0.0078
300	30	0.2198	6000	30	0.0072
300	40	0.1944	6000	40	0.0063
300	50	0.1631	6000	50	0.0053
300	60	0.1269	6000	60	0.0043
300	70	0.0865	6000	70	0.0033
300	80	0.0438	6000	80	0.0023
300	85	0.0238	6000	85	0.0019
300	90	0.0084	6000	90	0.0015
600	0	0.1770	10000	0	0.0026
600	20	0.1663	10000	20	0.0024
600	30	0.1532	10000	30	0.0022
600	40	0.1356	10000	40	0.0020
600	50	0.1137	10000	50	0.0017
600	60	0.0883	10000	60	0.0014
600	70	0.0599	10000	70	0.0011
600	80	0.0316	10000	80	0.0008
600	85	0.0191	10000	85	0.0006
600	90	0.0094	10000	90	0.0005
1000	0	0.1198	20000	0	0.0004
1000	20	0.1125	20000	20	0.0004
1000	30	0.1037	20000	30	0.0003
1000	40	0.0917	20000	40	0.0003
1000	50	0.0770	20000	50	0.0003
1000	60	0.0593	20000	60	0.0002
1000	70	0.0406	20000	70	0.0002
1000	80	0.0227	20000	80	0.0001
1000	85	0.0150	20000	85	0.0001
1000	90	0.0088	20000	90	0.0001

Table 85. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 90°$

$\phi_c = 120°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.3552	3000	0	0.0306
100	20	0.3310	3000	20	0.0265
100	30	0.3035	3000	30	0.0232
100	40	0.2669	3000	40	0.0191
100	50	0.2221	3000	50	0.0146
100	60	0.1706	3000	60	0.0101
100	70	0.1138	3000	70	0.0062
100	80	0.0529	3000	80	0.0032
100	85	0.0230	3000	85	0.0022
100	90	0.0017	3000	90	0.0014
300	0	0.2538	6000	0	0.0084
300	20	0.2339	6000	20	0.0070
300	30	0.2132	6000	30	0.0060
300	40	0.1859	6000	40	0.0048
300	50	0.1530	6000	50	0.0036
300	60	0.1154	6000	60	0.0026
300	70	0.0742	6000	70	0.0016
300	80	0.0317	6000	80	0.0009
300	85	0.0135	6000	85	0.0007
300	90	0.0028	6000	90	0.0005
600	0	0.1770	10000	0	0.0026
600	20	0.1612	10000	20	0.0022
600	30	0.1458	10000	30	0.0018
600	40	0.1260	10000	40	0.0014
600	50	0.1023	10000	50	0.0011
600	60	0.0755	10000	60	0.0008
600	70	0.0464	10000	70	0.0005
600	80	0.0193	10000	80	0.0003
600	85	0.0092	10000	85	0.0002
600	90	0.0032	10000	90	0.0001
1000	0	0.1198	20000	0	0.0004
1000	20	0.1078	20000	20	0.0003
1000	30	0.0967	20000	30	0.0003
1000	40	0.0828	20000	40	0.0002
1000	50	0.0663	20000	50	0.0001
1000	60	0.0475	20000	60	0.0000
1000	70	0.0284	20000	70	0.0000
1000	80	0.0123	20000	80	0.0000
1000	85	0.0066	20000	85	0.0000
1000	90	0.0030	20000	90	0.0000

Table 86. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 90°$ $\phi_c = 150°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.3552			
100	20	0.3290	3000	0	0.0306
100	30	0.3006	3000	20	0.0249
100	40	0.2631	3000	30	0.0209
100	50	0.2175	3000	40	0.0161
100	60	0.1654	3000	50	0.0111
100	70	0.1083	3000	60	0.0065
100	80	0.0471	3000	70	0.0030
100	85	0.0177	3000	80	0.0009
100	90	0.0002	3000	85	0.0004
300	0	0.2538	3000	90	0.0001
300	20	0.2306	6000	0	0.0084
300	30	0.2083	6000	20	0.0064
300	40	0.1797	6000	30	0.0051
300	50	0.1456	6000	40	0.0037
300	60	0.1070	6000	50	0.0025
300	70	0.0651	6000	60	0.0014
300	80	0.0231	6000	70	0.0006
300	85	0.0068	6000	80	0.0002
300	90	0.0003	6000	85	0.0001
600	0	0.1770	6000	90	0.0000
600	20	0.1575	10000	0	0.0026
600	30	0.1404	10000	20	0.0019
600	40	0.1190	10000	30	0.0015
600	50	0.0940	10000	40	0.0010
600	60	0.0661	10000	50	0.0006
600	70	0.0365	10000	60	0.0003
600	80	0.0109	10000	70	0.0001
600	85	0.0032	10000	80	0.0000
600	90	0.0004	10000	85	0.0000
1000	0	0.1198	10000	90	0.0000
1000	20	0.1043	20000	0	0.0004
1000	30	0.0916	20000	20	0.0003
1000	40	0.0762	20000	30	0.0002
1000	50	0.0585	20000	40	0.0001
1000	60	0.0389	20000	50	0.0000
1000	70	0.0197	20000	60	0.0000
1000	80	0.0055	20000	70	0.0000
1000	85	0.0018	20000	80	0.0000
1000	90	0.0004	20000	85	0.0000
			20000	90	0.0000

Table 87. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 90°$ $\phi_c = 180°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.3552	3000	0	0.0306
100	20	0.3282	3000	20	0.0243
100	30	0.2995	3000	30	0.0200
100	40	0.2617	3000	40	0.0150
100	50	0.2159	3000	50	0.0098
100	60	0.1635	3000	60	0.0052
100	70	0.1062	3000	70	0.0018
100	80	0.0450	3000	80	0.0002
100	85	0.0157	3000	85	0.0000
100	90	0.0000	3000	90	0.0000
300	0	0.2538	6000	0	0.0084
300	20	0.2294	6000	20	0.0062
300	30	0.2065	6000	30	0.0048
300	40	0.1774	6000	40	0.0034
300	50	0.1428	6000	50	0.0020
300	60	0.1039	6000	60	0.0010
300	70	0.0618	6000	70	0.0003
300	80	0.0199	6000	80	0.0000
300	85	0.0044	6000	85	0.0000
300	90	0.0000	6000	90	0.0000
600	0	0.1770	10000	0	0.0026
600	20	0.1561	10000	20	0.0018
600	30	0.1384	10000	30	0.0014
600	40	0.1164	10000	40	0.0009
600	50	0.0909	10000	50	0.0005
600	60	0.0627	10000	60	0.0002
600	70	0.0329	10000	70	0.0000
600	80	0.0079	10000	80	0.0000
600	85	0.0013	10000	85	0.0000
600	90	0.0000	10000	90	0.0000
1000	0	0.1198	20000	0	0.0004
1000	20	0.1030	20000	20	0.0003
1000	30	0.0898	20000	30	0.0002
1000	40	0.0738	20000	40	0.0001
1000	50	0.0556	20000	50	0.0000
1000	60	0.0357	20000	60	0.0000
1000	70	0.0165	20000	70	0.0000
1000	80	0.0031	20000	80	0.0000
1000	85	0.0004	20000	85	0.0000
1000	90	0.0000	20000	90	0.0000

Table 88. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 120°$ $\phi_c = 0°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.1351	3000	0	
100	20	0.1299	3000	20	
100	30	0.1214	3000	30	
100	40	0.1091	3000	40	
100	50	0.0936	3000	50	
100	60	0.0752	3000	60	
100	70	0.0545	3000	70	
100	80	0.0321	3000	80	
100	85	0.0205	3000	85	
100	90	0.0088	3000	90	
300	0	0.0746	6000	0	
300	20	0.0740	6000	20	
300	30	0.0703	6000	30	
300	40	0.0645	6000	40	
300	50	0.0566	6000	50	
300	60	0.0471	6000	60	
300	70	0.0362	6000	70	
300	80	0.0241	6000	80	
300	85	0.0178	6000	85	
300	90	0.0113	6000	90	
600	0	0.0369	10000	0	
600	20	0.0379	10000	20	
600	30	0.0367	10000	30	
600	40	0.0343	10000	40	
600	50	0.0310	10000	50	
600	60	0.0266	10000	60	
600	70	0.0215	10000	70	
600	80	0.0157	10000	80	
600	85	0.0126	10000	85	
600	90	0.0094	10000	90	
1000	0	0.0157	20000	0	
1000	20	0.0168	20000	20	
1000	30	0.0166	20000	30	
1000	40	0.0159	20000	40	
1000	50	0.0147	20000	50	
1000	60	0.0130	20000	60	
1000	70	0.0110	20000	70	
1000	80	0.0086	20000	80	
1000	85	0.0073	20000	85	
1000	90	0.0059	20000	90	

CONVAIR ASTRONAUTICS

Table 89. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 120°$ $\phi_c = 30°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.1351	3000	0	
100	20	0.1295	3000	20	
100	30	0.1208	3000	30	
100	40	0.1084	3000	40	
100	50	0.0927	3000	50	
100	60	0.0741	3000	60	
100	70	0.0534	3000	70	
100	80	0.0310	3000	80	
100	85	0.0190	3000	85	
100	90	0.0072	3000	90	
300	0	0.0746	6000	0	
300	20	0.0735	6000	20	
300	30	0.0695	6000	30	
300	40	0.0635	6000	40	
300	50	0.0555	6000	50	
300	60	0.0458	6000	60	
300	70	0.0347	6000	70	
300	80	0.0226	6000	80	
300	85	0.0165	6000	85	
300	90	0.0098	6000	90	
600	0	0.0369	10000	0	
600	20	0.0375	10000	20	
600	30	0.0361	10000	30	
600	40	0.0335	10000	40	
600	50	0.0300	10000	50	
600	60	0.0255	10000	60	
600	70	0.0203	10000	70	
600	80	0.0144	10000	80	
600	85	0.0114	10000	85	
600	90	0.0081	10000	90	
1000	0	0.0157	20000	0	
1000	20	0.0165	20000	20	
1000	30	0.0162	20000	30	
1000	40	0.0154	20000	40	
1000	50	0.0141	20000	50	
1000	60	0.0123	20000	60	
1000	70	0.0102	20000	70	
1000	80	0.0078	20000	80	
1000	85	0.0065	20000	85	
1000	90	0.0050	20000	90	

Table 90. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 120°$ $\phi_c = 60°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.1351	3000	0	
100	20	0.1284	3000	20	
100	30	0.1192	3000	30	
100	40	0.1063	3000	40	
100	50	0.0902	3000	50	
100	60	0.0713	3000	60	
100	70	0.0503	3000	70	
100	80	0.0280	3000	80	
100	85	0.0170	3000	85	
100	90	0.0060	3000	90	
300	0	0.0746	6000	0	
300	20	0.0721	6000	20	
300	30	0.0675	6000	30	
300	40	0.0608	6000	40	
300	50	0.0523	6000	50	
300	60	0.0422	6000	60	
300	70	0.0308	6000	70	
300	80	0.0185	6000	80	
300	85	0.0120	6000	85	
300	90	0.0054	6000	90	
600	0	0.0369	10000	0	
600	20	0.0363	10000	20	
600	30	0.0343	10000	30	
600	40	0.0313	10000	40	
600	50	0.0273	10000	50	
600	60	0.0225	10000	60	
600	70	0.0172	10000	70	
600	80	0.0113	10000	80	
600	85	0.0082	10000	85	
600	90	0.0050	10000	90	
1000	0	0.0157	20000	0	
1000	20	0.0158	20000	20	
1000	30	0.0151	20000	30	
1000	40	0.0140	20000	40	
1000	50	0.0124	20000	50	
1000	60	0.0104	20000	60	
1000	70	0.0080	20000	70	
1000	80	0.0057	20000	80	
1000	85	0.0044	20000	85	
1000	90	0.0031	20000	90	

CONVAIR ASTRONAUTICS

Table 91. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 120°$ $\phi_c = 90°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.1351	3000	0	
100	20	0.1269	3000	20	
100	30	0.1170	3000	30	
100	40	0.1034	3000	40	
100	50	0.0868	3000	50	
100	60	0.0675	3000	60	
100	70	0.0462	3000	70	
100	80	0.0240	3000	80	
100	85	0.0130	3000	85	
100	90	0.0030	3000	90	
300	0	0.0746	6000	0	
300	20	0.0701	6000	20	
300	30	0.0646	6000	30	
300	40	0.0572	6000	40	
300	50	0.0479	6000	50	
300	60	0.0373	6000	60	
300	70	0.0250	6000	70	
300	80	0.0125	6000	80	
300	85	0.0070	6000	85	
300	90	0.0050	6000	90	
600	0	0.0369	10000	0	
600	20	0.0347	10000	20	
600	30	0.0320	10000	30	
600	40	0.0283	10000	40	
600	50	0.0237	10000	50	
600	60	0.0184	10000	60	
600	70	0.0125	10000	70	
600	80	0.0068	10000	80	
600	85	0.0040	10000	85	
600	90	0.0020	10000	90	
1000	0	0.0157	20000	0	
1000	20	0.0148	20000	20	
1000	30	0.0136	20000	30	
1000	40	0.0120	20000	40	
1000	50	0.0101	20000	50	
1000	60	0.0077	20000	60	
1000	70	0.0054	20000	70	
1000	80	0.0030	20000	80	
1000	85	0.0020	20000	85	
1000	90	0.0011	20000	90	

CONVAIR ASTRONAUTICS

Table 92. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 120°$ $\phi_c = 120°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.1351	3000	0	
100	20	0.1254	3000	20	
100	30	0.1147	3000	30	
100	40	0.1006	3000	40	
100	50	0.0834	3000	50	
100	60	0.0637	3000	60	
100	70	0.0420	3000	70	
100	80	0.0189	3000	80	
100	85	0.0076	3000	85	
100	90	0.0015	3000	90	
300	0	0.0746	6000	0	
300	20	0.0682	6000	20	
300	30	0.0618	6000	30	
300	40	0.0535	6000	40	
300	50	0.0436	6000	50	
300	60	0.0324	6000	60	
300	70	0.0200	6000	70	
300	80	0.0077	6000	80	
300	85	0.0032	6000	85	
300	90	0.0008	6000	90	
600	0	0.0369	10000	0	
600	20	0.0331	10000	20	
600	30	0.0296	10000	30	
600	40	0.0252	10000	40	
600	50	0.0201	10000	50	
600	60	0.0143	10000	60	
600	70	0.0081	10000	70	
600	80	0.0028	10000	80	
600	85	0.0011	10000	85	
600	90	0.0003	10000	90	
1000	0	0.0157	20000	0	
1000	20	0.0138	20000.	20	
1000	30	0.0121	20000	30	
1000	40	0.0101	20000	40	
1000	50	0.0078	20000	50	
1000	60	0.0052	20000	60	
1000	70	0.0027	20000	70	
1000	80	0.0009	20000	80	
1000	85	0.0004	20000	85	
1000	90	0.0001	20000	90	

Table 93. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 120°$ $\phi_c = 150°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.1351	3000	0	
100	20	0.1243	3000	20	
100	30	0.1131	3000	30	
100	40	0.0985	3000	40	
100	50	0.0809	3000	50	
100	60	0.0609	3000	60	
100	70	0.0390	3000	70	
100	80	0.0158	3000	80	
100	85	0.0049	3000	85	
100	90	0.0001	3000	90	
300	0	0.0746	6000	0	
300	20	0.0668	6000	20	
300	30	0.0597	6000	30	
300	40	0.0508	6000	40	
300	50	0.0404	6000	50	
300	60	0.0288	6000	60	
300	70	0.0170	6000	70	
300	80	0.0042	6000	80	
300	85	0.0007	6000	85	
300	90	0.0000	6000	90	
600	0	0.0369	10000	0	
600	20	0.0319	10000	20	
600	30	0.0279	10000	30	
600	40	0.0230	10000	40	
600	50	0.0174	10000	50	
600	60	0.0113	10000	60	
600	70	0.0051	10000	70	
600	80	0.0007	10000	80	
600	85	0.0001	10000	85	
600	90	0.0000	10000	90	
1000	0	0.0157	20000	0	
1000	20	0.0130	20000	20	
1000	30	0.0110	20000	30	
1000	40	0.0087	20000	40	
1000	50	0.0061	20000	50	
1000	60	0.0034	20000	60	
1000	70	0.0011	20000	70	
1000	80	0.0000	20000	80	
1000	85	0.0000	20000	85	
1000	90	0.0000	20000	90	

Table 94. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

δ = 120°

ϕ_c = 180°

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.1351	3000	0	
100	20	0.1239	3000	20	
100	30	0.1125	3000	30	
100	40	0.0978	3000	40	
100	50	0.0800	3000	50	
100	60	0.0598	3000	60	
100	70	0.0378	3000	70	
100	80	0.0130	3000	80	
100	85	0.0024	3000	85	
100	90	0.0000	3000	90	
300	0	0.0746	6000	0	
300	20	0.0662	6000	20	
300	30	0.0589	6000	30	
300	40	0.0499	6000	40	
300	50	0.0393	6000	50	
300	60	0.0275	6000	60	
300	70	0.0145	6000	70	
300	80	0.0024	6000	80	
300	85	0.0005	6000	85	
300	90	0.0000	6000	90	
600	0	0.0369	10000	0	
600	20	0.0314	10000	20	
600	30	0.0272	10000	30	
600	40	0.0222	10000	40	
600	50	0.0164	10000	50	
600	60	0.0100	10000	60	
600	70	0.0040	10000	70	
600	80	0.0002	10000	80	
600	85	0.0000	10000	85	
600	90	0.0000	10000	90	
1000	0	0.0157	20000	0	
1000	20	0.0127	20000	20	
1000	30	0.0106	20000	30	
1000	40	0.0082	20000	40	
1000	50	0.0055	20000	50	
1000	60	0.0029	20000	60	
1000	70	0.0008	20000	70	
1000	80	0.0000	20000	80	
1000	85	0.0000	20000	85	
1000	90	0.0000	20000	90	

Table 95. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 150°$ $\phi_c = 0°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.0144	3000	0	
100	20	0.0141	3000	20	
100	30	0.0132	3000	30	
100	40	0.0120	3000	40	
100	50	0.0104	3000	50	
100	60	0.0085	3000	60	
100	70	0.0064	3000	70	
100	80	0.0040	3000	80	
100	85	0.0028	3000	85	
100	90	0.0015	3000	90	
300	0	0.0015	6000	0	
300	20	0.0016	6000	20	
300	30	0.0015	6000	30	
300	40	0.0014	6000	40	
300	50	0.0013	6000	50	
300	60	0.0011	6000	60	
300	70	0.0009	6000	70	
300	80	0.0006	6000	80	
300	85	0.0005	6000	85	
300	90	0.0004	6000	90	
600	0		10000	0	
600	20		10000	20	
600	30		10000	30	
600	40		10000	40	
600	50		10000	50	
600	60		10000	60	
600	70		10000	70	
600	80		10000	80	
600	85		10000	85	
600	90		10000	90	
1000	0		20000	0	
1000	20		20000	20	
1000	30		20000	30	
1000	40		20000	40	
1000	50		20000	50	
1000	60		20000	60	
1000	70		20000	70	
1000	80		20000	80	
1000	85		20000	85	
1000	90		20000	90	

CONVAIR ASTRONAUTICS

Table 96. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 150°$　　　　　　　　　　　　　　$\phi_c = 30°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.0144	3000	0	
100	20	0.0140	3000	20	
100	30	0.0131	3000	30	
100	40	0.0119	3000	40	
100	50	0.0103	3000	50	
100	60	0.0083	3000	60	
100	70	0.0062	3000	70	
100	80	0.0038	3000	80	
100	85	0.0025	3000	85	
100	90	0.0013	3000	90	
300	0	0.0015	6000	0	
300	20	0.0016	6000	20	
300	30	0.0015	6000	30	
300	40	0.0014	6000	40	
300	50	0.0012	6000	50	
300	60	0.0011	6000	60	
300	70	0.0008	6000	70	
300	80	0.0006	6000	80	
300	85	0.0005	6000	85	
300	90	0.0003	6000	90	
600	0		10000	0	
600	20		10000	20	
600	30		10000	30	
600	40		10000	40	
600	50		10000	50	
600	60		10000	60	
600	70		10000	70	
600	80		10000	80	
600	85		10000	85	
600	90		10000	90	
1000	0		20000	0	
1000	20		20000	20	
1000	30		20000	30	
1000	40		20000	40	
1000	50		20000	50	
1000	60		20000	60	
1000	70		20000	70	
1000	80		20000	80	
1000	85		20000	85	
1000	90		20000	90	

CONVAIR ASTRONAUTICS

Table 97. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

γ = 150° ϕ_c = 60°

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.0144	3000	0	
100	20	0.0138	3000	20	
100	30	0.0129	3000	30	
100	40	0.0115	3000	40	
100	50	0.0098	3000	50	
100	60	0.0079	3000	60	
100	70	0.0056	3000	70	
100	80	0.0032	3000	80	
100	85	0.0021	3000	85	
100	90	0.0008	3000	90	
300	0	0.0015	6000	0	
300	20	0.0015	6000	20	
300	30	0.0014	6000	30	
300	40	0.0013	6000	40	
300	50	0.0011	6000	50	
300	60	0.0009	6000	60	
300	70	0.0007	6000	70	
300	80	0.0004	6000	80	
300	85	0.0003	6000	85	
300	90	0.0002	6000	90	
600	0		10000	0	
600	20		10000	20	
600	30		10000	30	
600	40		10000	40	
600	50		10000	50	
600	60		10000	60	
600	70		10000	70	
600	80		10000	80	
600	85		10000	85	
600	90		10000	90	
1000	0		20000	0	
1000	20		20000	20	
1000	30		20000	30	
1000	40		20000	40	
1000	50		20000	50	
1000	60		20000	60	
1000	70		20000	70	
1000	80		20000	80	
1000	85		20000	85	
1000	90		20000	90	

Table 98. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 150°$ $\phi_c = 90°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.0144	3000	0	
100	20	0.0135	3000	20	
100	30	0.0125	3000	30	
100	40	0.0110	3000	40	
100	50	0.0092	3000	50	
100	60	0.0072	3000	60	
100	70	0.0049	3000	70	
100	80	0.0024	3000	80	
100	85	0.0012	3000	85	
100	90	0.0003	3000	90	
300	0	0.0015	6000	0	
300	20	0.0014	6000	20	
300	30	0.0013	6000	30	
300	40	0.0012	6000	40	
300	50	0.0010	6000	50	
300	60	0.0007	6000	60	
300	70	0.0005	6000	70	
300	80	0.0003	6000	80	
300	85	0.0001	6000	85	
300	90	0.0000	6000	90	
600	0		10000	0	
600	20		10000	20	
600	30		10000	30	
600	40		10000	40	
600	50		10000	50	
600	60		10000	60	
600	70		10000	70	
600	80		10000	80	
600	85		10000	85	
600	90		10000	90	
1000	0		20000	0	
1000	20		20000	20	
1000	30		20000	30	
1000	40		20000	40	
1000	50		20000	50	
1000	60		20000	60	
1000	70		20000	70	
1000	80		20000	80	
1000	85		20000	85	
1000	90		20000	90	

CONVAIR ASTRONAUTICS

Table 99. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 150°$ $\phi_c = 120°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.0144	3000	0	
100	20	0.0133	3000	20	
100	30	0.0121	3000	30	
100	40	0.0105	3000	40	
100	50	0.0086	3000	50	
100	60	0.0065	3000	60	
100	70	0.0042	3000	70	
100	80	0.0017	3000	80	
100	85	0.0007	3000	85	
100	90	0.0000	3000	90	
300	0	0.0015	6000	0	
300	20	0.0014	6000	20	
300	30	0.0012	6000	30	
300	40	0.0010	6000	40	
300	50	0.0008	6000	50	
300	60	0.0006	6000	60	
300	70	0.0003	6000	70	
300	80	0.0001	6000	80	
300	85	0.0000	6000	85	
300	90	0.0000	6000	90	
600	0		10000	0	
600	20		10000	20	
600	30		10000	30	
600	40		10000	40	
600	50		10000	50	
600	60		10000	60	
600	70		10000	70	
600	80		10000	80	
600	85		10000	85	
600	90		10000	90	
1000	0		20000	0	
1000	20		20000	20	
1000	30		20000	30	
1000	40		20000	40	
1000	50		20000	50	
1000	60		20000	60	
1000	70		20000	70	
1000	80		20000	80	
1000	85		20000	85	
1000	90		20000	90	

Table 100. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 150°$ $\phi_c = 150°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.0144	3000	0	
100	20	0.0131	3000	20	
100	30	0.0118	3000	30	
100	40	0.0102	3000	40	
100	50	0.0082	3000	50	
100	60	0.0060	3000	60	
100	70	0.0036	3000	70	
100	80	0.0011	3000	80	
100	85	0.0001	3000	85	
100	90	0.0000	3000	90	
300	0	0.0015	6000	0	
300	20	0.0013	6000	20	
300	30	0.0011	6000	30	
300	40	0.0009	6000	40	
300	50	0.0007	6000	50	
300	60	0.0004	6000	60	
300	70	0.0002	6000	70	
300	80	0.0000	6000	80	
300	85	0.0000	6000	85	
300	90	0.0000	6000	90	
600	0		10000	0	
600	20		10000	20	
600	30		10000	30	
600	40		10000	40	
600	50		10000	50	
600	60		10000	60	
600	70		10000	70	
600	80		10000	80	
600	85		10000	85	
600	90		10000	90	
1000	0		20000	0	
1000	20		20000	20	
1000	30		20000	30	
1000	40		20000	40	
1000	50		20000	50	
1000	60		20000	60	
1000	70		20000	70	
1000	80		20000	80	
1000	85		20000	85	
1000	90		20000	90	

CONVAIR ASTRONAUTICS

Table 101. GEOMETRIC FACTOR FOR ALBEDO TO A FLAT PLATE

$\gamma = 150°$ $\phi_c = 180°$

Altitude n. m.	θ_s degree	F	Altitude n. m.	θ_s degree	F
100	0	0.0144	3000	0	
100	20	0.0130	3000	20	
100	30	0.0117	3000	30	
100	40	0.0100	3000	40	
100	50	0.0081	3000	50	
100	60	0.0058	3000	60	
100	70	0.0034	3000	70	
100	80	0.0011	3000	80	
100	85	0.0004	3000	85	
100	90	0.0000	3000	90	
300	0	0.0015	6000	0	
300	20	0.0013	6000	20	
300	30	0.0011	6000	30	
300	40	0.0009	6000	40	
300	50	0.0006	6000	50	
300	60	0.0004	6000	60	
300	70	0.0001	6000	70	
300	80	0.0000	6000	80	
300	85	0.0000	6000	85	
300	90	0.0000	6000	90	
600	0		10000	0	
600	20		10000	20	
600	30		10000	30	
600	40		10000	40	
600	50		10000	50	
600	60		10000	60	
600	70		10000	70	
600	80		10000	80	
600	85		10000	85	
600	90		10000	90	
1000	0		20000	0	
1000	20		20000	20	
1000	30		20000	30	
1000	40		20000	40	
1000	50		20000	50	
1000	60		20000	60	
1000	70		20000	70	
1000	80		20000	80	
1000	85		20000	85	
1000	90		20000	90	